THE AUTOMOBILE

WEEKLY NEW YORK—THURSDAY, APRIL 11, 1907—CHICAGO 10 CENTS

Automobile Bodies and Tops

ALL STYLES AND SIZES
...IN...
LIMOUSINE
LANDAULETTE
TOURING and
RUNABOUT
BODIES

BUILT TO ORDER PROMPTLY

In soliciting your business we are placing at your disposal the knowledge and experience of the past thirty years in the building of high-grade work, which, with progressive and up-to-date methods, is a guarantee of the high standard that will be maintained in our Automobile Body and Top Department.

SEND SPECIFICATIONS AND LET US QUOTE PRICES

All our Tops are made of the highest grade Leather, Imported Twills, Pantasote, Government Khaki, etc., etc.

BUILT TO ORDER TO FIT ANY CAR

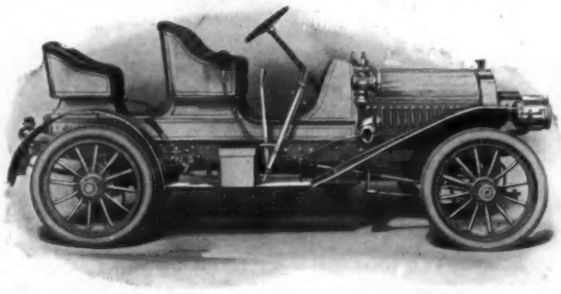
HUME CARRIAGE CO.

Automobile Dept. **AMESBURY, MASS.**

A Right Racy Roadster with the graceful lines of the greyhound. The

RACYTYPE
Mora Roadster

comprises the same mechanically right mud-proof construction that made the MORA famous within a year



Ignition System: LaCoste high tension Magneto, working on one set of spark plugs, in

RACYTYPE
Mora Roadster

while LaCosta coil and timer with storage battery current works on another set, making each system independent

EQUALLY SUITABLE FOR TOWN AND CROSS COUNTRY RUNNING

SPECIFICATIONS—Four cylinder vertical Engine, 24 horse power, water cooled, 98-inch wheel base; 32-inch wheels; Imported Magneto; two Individual Passenger and Rumble Seats. Weight 1750 pounds. Entirely mud proof, Price $2300. Send for folder.

The second edition of our 1907 catalog tells more of the vital inside mechanism than any other manufacturer shows in print, and in less words. It's free, and includes three models

MORA MOTOR CAR COMPANY

318 Livingston Building ROCHESTER, NEW YORK.

WORKS, NEWARK, NEW YORK

Vol. XVI. New York—Thursday, April 11, 1907—Chicago No. 15

THE AUTOMOBILE

America's Candidate for the Grand Prix

By W. F. Bradley

IT is never safe to prophesy about an automobile race, even if you know. One thing, however, that may be predicted with certainty about the Grand Prix is that the American representative will be watched with more than ordinary interest by constructors and automobilists on both sides of the Atlantic. In designing his car, Walter Christie has remained true to his first love and is more convinced than ever that a front drive and front steering machine is capable of holding its own against European chain or shaft-driven flyers.

No front-drive racer has ever been built in Europe, and, indeed, only one firm in the whole of France has attempted to produce pleasure or commercial automobiles of this type. The French racers in the Grand Prix are conspicuously alike and bear a close resemblance to the machines of last year, despite the radical change in racing rules. It remains for the foreigners engaged in the French race, and for the American entrant in particular to add a little interesting variety.

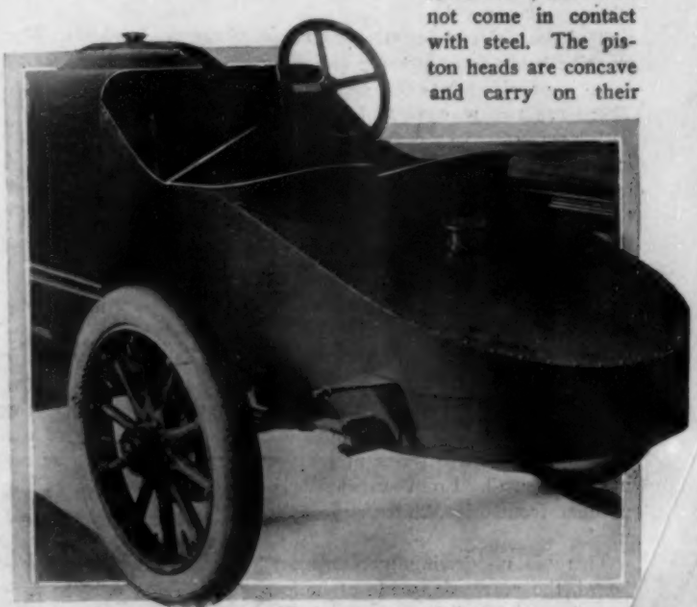
Grand Prix Racer Entirely New Production.

No part of the Christie machine which ran in the last Vanderbilt race has been used in the new automobile. Construction is on similar lines, but greater care has been taken in the selection of the material and a number of improvements suggested by past experience have been carried out. Specially imported Bischoff steel is used very largely in its construction, and many parts which last year were of bronze are now of this metal. The frame is of channel-section pressed steel, with rounded rear, wheel base being 100 inches and track 56 inches. The machine has not yet been weighed in its completed condition, but it is estimated that it will not scale more than 1,700 pounds. In proportion to its horsepower, it will be the smallest and lightest machine in the race.

Being both front-driving and front-steering, the entire motive power of the car is carried forward, the rear portion being absolutely free. The engine is mounted on a circular nickel steel crankcase, carried across the forward end of the chassis, the tubular radiator passes from one side of the frame to the other in the form of an inverted U, the two seats are to the rear of this and the gasoline tank is carried astern. By looking under the radiator the driver obtains a good view of the engine; altogether the racer is compact and accessible and has the advantage of a perfectly clean underbody, for the entire chassis from crankcase rearwards is floored in by thin sheets of aluminum.

The Power Plant.

There is no front axle, the circular steel crankcase across the frame fulfilling most of the functions of that organ. The four separate steel cylinders, 7 1-4 inches bore by 7 1-4 inches stroke, are bolted on the crankcase, staggered, with a distinct leaning rearwards. A copper water jacket surrounds each cylinder and a circulation of water is assured around the valves, all of which are in the cylinder head. The steel pistons carry three segments placed close to the head, and on the lower portion of the pistons are two bronze bearing-metal rings each about one and one-half inches in depth. Thus, though the piston and cylinder walls are of the same metal, steel does not come in contact with steel. The piston heads are concave and carry on their



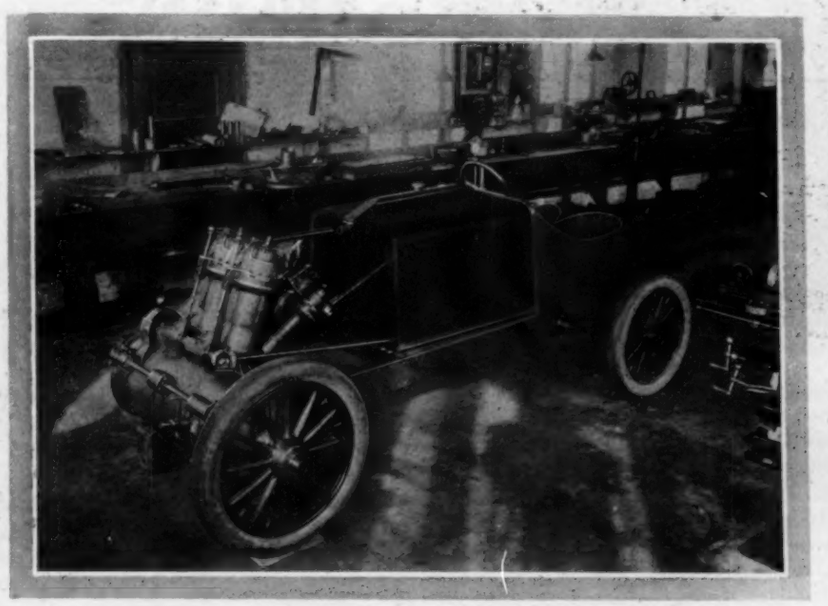
"CRADLED" GASOLINE TANK AND TIRE PLATFORM.

lower surface a number of radiating fins. All valves are in the head, the exhaust valves being mechanically operated by a rocker arm from a single camshaft mounted outside the crankcase and driven by an intermediate gear from the right-hand side of crankshaft. There are eight small automatic inlet valves for each cylinder arranged circularly in the cylinder head around the single exhaust valve. Over each cylinder head is bolted a manganese bronze inlet valve chamber, to which are connected the intake pipes from the carbureter.

Christie Machine Can Do Two Miles a Minute.

The engine speed is normally 1,000 revolutions per minute, accelerating up to 1,200 revolutions. As one revolution of the crankshaft corresponds to one revolution of the road wheels, the machine will, with the size of wheels now employed, be capable of doing two miles a minute. The Dieppe course being exceedingly fast, this ratio will doubtless be maintained if the practical fuel tests about to be begun accord with theory.

The engine is fitted with a Breeze carbureter modified somewhat to suit the racer. Lubrication is assured by a Pedersen pressure feed oiler. Ignition is by battery and Heinz five-unit coil. The commutator is also of Heinz manufacture. An ignition cut-out is provided on the steering wheel and spark and throttle levers are placed under the wheel.



CHRISTIE RACER, SHOWING COMPACTNESS OF POWER PLANT.

One of the most interesting features of the car, and the one in which it differs entirely from its competitors, is the method of transmission and drive. Normally the drive is direct from the two-throw camshaft to the front wheels, one revolution of the shaft giving one revolution of the road wheels. The machine being front steering as well as front driven, a universal joint is provided between each road wheel and the crankshaft. There are two manganese bronze flywheels, grooved and fitted with layers of woven camel's hair, which will give a perfect binding surface and which experiments have proved cannot be burned by slipping of the clutch. Chrome steel is used for the clutch, and this metal is also employed for the keyways, which on last year's machines were of bronze.

Change Speed Gear Shows Individuality.

One low speed and a reverse are provided by sliding gear mounted on the front of the crankcase parallel with the mainshaft. A gear is cut around the face of the flywheels, and for low and reverse drive the transmission is by gears from the crankshaft, through intermediate gears within the crankcase, to the sliding gear and pinion, meshing with gear on the face of the flywheel. All these gears are, of course, enclosed and are remarkably small. Front suspension is necessarily modified by the peculiar front drive, coil springs and a large rubber buffer being used.

There is no driving mechanism whatever rear of the dashboard, the rear axle, made of hollow steel, having only to support the weight of the car. Semi-elliptic springs are consequently employed, attached solid forward and shackled at the rear. Expanding internal and contracting external band brakes, both woven camel's hair against steel, are mounted on drums on the rear axle. Breaking strain, however, comes on the distance rods and not on the rear axle itself. The rear brakes are operated by foot pedals, so placed that the two can be covered with one foot.

Water Cooling System is Distinctive.

The whole of the space between the engine and the dashboard is occupied by a Kell's tubular fin radiator in the shape of an inverted U passing from one side frame to the other. The rearmost radiator tube touches the dashboard, but to reduce the danger of breakage by vibration wood is interposed between the two. Between the lower tubes of the radiator and the side frame on which they rest a strip of leather is inserted with the same object, the radiator being wired to the frame by soft copper wire. A little improvement is noticeable here as the result of past experience. Instead of a single wire being wound through, which, if it should break, would leave the entire side of the radiator free, a separate wire passes between each tube to its hole pierced in the frame. The breaking of a few wires would not interfere with the stability of the radiator. Water circulation is assured by a bucket pump driven by bevel gears from the camshaft. The commutator is driven from the same shaft.

As everyone knows, the Grand Prix is run on a limited fuel allowance. No attention will be paid by the racing board to the weight of the machines or their mechanical features, but the tanks will be examined conscientiously. Walter Christie has placed the gasoline tank behind the seats within a rear cradle lined with wood to prevent friction between the two metals, and completely covered over by a metal shield screwed down for easy removal. The tank filler is the only portion which is exposed. For examination it is only necessary to take out the screws, disconnect the pipes and lift the tank out of its cradle. When all is closed up the metal box protects the tank and the fuel, the loss of even a small quantity of which in the race might decide between victory and defeat. The top of the tank cradle will also serve as a platform for spare tires. Twenty-five gallons of gasoline can be carried in the tank; as the total allowance for the race is about forty gallons, it will only be necessary to stop once to replenish the supply.

Christie Designs His Own Dismountable Rims.

Patent rims of Walter Christie's own design are employed, the feature of which is that there is no felloe, the hollow steel spokes, ten in number, bolting to lugs on the movable rim on which the tire has been previously mounted and inflated.

Engine control is obtained by spark and throttle levers under the steering wheel, the two brakes are operated by left-hand pedals and the clutch by a foot pedal to the right; this reversion of the usual method of placing pedals has been necessary to get a more convenient connection. Change-speed gear is operated by a side lever and the clutch can also be withdrawn by a side lever provided with a rack and notch for keeping the clutch out.

THE GRAND PRIX.

PARIS, March 28.—Excepting the front-drive machine being built by Walter Christie, the Grand Prix racers are constructed on such uniform lines that a tabular comparison of their features is a simple matter. Of the 34 competitors, representing 15 firms and 7 nations, 17 have final drive by side chains and 16 have propeller shaft and rear live axle. The proportion remains about the same from year to year. Brasier, who last year constructed shaft and chain-driven racers, is still experimenting with the two types. Panhard, on the other hand, though building all ordinary touring machines with side chains, has decided to use propeller shaft drive again. In last year's Grand Prix 20 shaft machines started and three finished, the percentage of arrivals being 15. Fourteen chain - driven machines started and 8 of them, or 57 per cent., finished the race.

Makers seem to be equally divided on the qualities of high and low tension ignition. It will be noted that all machines, with the exception of Christie's, are equipped with magnetos.

Leather - faced cone clutches maintain their position, notwithstanding the attacks of different types of metal disc clutches. With such firms as Darracq, Brasier and Renault as its advocates, it cannot be said that the cone clutch has ceased to exist. Mercedes adheres to its particular type of spiral spring clutch.

Shock absorbers are used on nearly all the machines. Darracq and Renault, as last year, have built racers with no differential.

Carbureters are in each case the standard type used by the firms in their stock machines. Doubtless many minor improvements have been made here, for the Grand Prix is a fuel consumption race. There is nothing, however, that can be tabulated, and makers are not very communicative.

CHARACTERISTICS OF RACERS ENGAGED IN THE FRENCH GRAND PRIX.

MAKE	Driver	Type of Motor	Bore inches	Stroke inches	Horse-power	Ignition	Radiator	Cooling	Carburetor	Clutch	Change Speed	Drive	Weight pounds	Wheel Base inches	Track inches	Rims	Particular Features
Bayard-Clement	A. Clément Garcet Gauderman	4 separate steel cylinders, copper jackets	6.2	6.2	125	Simms-Bosch h.t. Magneto	Honey-comb	Cent'f'l pump	Bayard-Clement perpendicular currents	Hele Shaw disc steel & bronze	4 speeds, sliding gear, reverse by separate lever	Chains	2244	112	53	Dismountable	D.W.F. ball b'gs, Automatic sparking ad.
Darracq	Wagner Hanriot Demogeot	4 cylinders, in pairs	7.08	5.9	130	Simms-Bosch l. t. Magneto	Winged tubes	Gear pump	Darracq parallel currents	Bronze-faced cone	3 speeds, sliding gear	Shaft	2200	106	52	Wire, dismountable	D.W.F. ball b'gs, V-shaped rad'r, no differential.
Motobloc	Kistemaeckers (two others.)	4 cylinders, in pairs	6.6	5.9	110	Nilmelior l.t. Magneto	Winged tubes	Cent'f'l pump	Dombret	Metallic segments	4 speeds, sliding gear	Chains	2332	112	55	Dismountable	Motor, clutch & g'r box 1 unit.
Corre	D'Hespel	4 cylinders, in pairs	5.9	5.9	80	Simms-Bosch h.t. Magneto	Winged tubes	Thermo Syphon	Corre parallel currents	Leather-faced cone	3 speeds, sliding gear	Shaft	2099	110	55	Michelin dismountable	
Panhard	Le Blon Heath Dutemple	4 separate steel cylinders, copper jackets	7.2	6.6	125	Eisemann-Levalette h.t. Magneto	Honey-comb	Cent'f' pump	Krebs. perpen. currents, Hydraulic governor	Hele Shaw disc steel & bronze	4 speeds, sliding gear	Shaft	2376	112	53	Michelin dismountable	
Renault	Szisz Edmond Riches	4 cylinders, cast in pairs	6.4	5.9	115	Simms-Bosch h.t.'Magneto	Cop. t'bs behind motor	Thermo Syphon	Renault parallel currents	Leather-faced cone, inverted	3 speeds, sliding gear, reverse by separate lever	Shaft	2355	112	49	Michelin dismountable	No diff'n'l, Low frame. Autom'c spark advance.
Lorraine Dietrich	Duray Rougier Gabriel	4 cylinders, cast in pairs	7.08	5.6	125	Simms-Bosch l.t. Magneto	Winged tubes	Cent'f'l pump	Lorraine Dietrich perpendicular currents	Metallic segments	4 speeds & reverse, sliding gear	Chains	2355	106	53	Michelin dismountable	D. W. F. ball bearings.
Germain	Degrais Perpere Roch Brault	4 separate steel cylinders, copper jackets	6.2	5.9	105	Simms-Bosch h.t. Magneto	Honey-comb	Cent'f'l pump	Germain parallel currents	Leather-faced cone	3 speeds, sliding gear	Chains	2170	108	52	Dismountable	Low chas's, Autom'c spk'g ad.
Weigel	Lee Guinness Weigel	8 cylinders, two groups	4.7	5.5	100	High tension Magneto	Cellular	Gear pump	Weigel perpend'lar cur'ts	Leather-faced cone	3 speeds, sliding gear	Shaft	2200	114	52		Eight cylinders in one line.
Porthos	Stricker	8 cylinders, two groups	4.3	4.7	80	Simms-Bosch h.t. Magneto	Cellular	Cent'f'l pump	Parallel currents	Leather-faced cone	4 speeds, sliding gear	Shaft	2090	116	53	Peter Simplex	
Brasier	Barillier Baras Bablot	4 separate cylinders	6.4	5.5	120	Simms-Bosch l.t. Magneto	Winged tubes	Cent'f'l pump	Brasier, convergent, at 120 degrees	Leather-faced cone, locking devise	4 speeds, sliding gear	2 Shaft 1 Chain	2310	108	53	Dismountable	Off set engine, D. W. F. ball bearings.
Marchand	Dufaux	8 cylinders, two groups	4.9	5.9	125	Simms-Bosch h.t. Magneto	Honey-comb	Turbine pump	Dufaux automatic	Hele Shaw disc steel & bronze	3 speeds, sliding gear	Chains	2376	114	53		
Aquila Italiana	Pichat	6 cylinders, one casting	5.1	5.5	90	Simms-Bosch h.t. Magneto	Honey-comb	Turbine pump	Automatic perpendicular currents	Hele Shaw disc steel & bronze	4 speeds & reverse, sliding gear	Shaft	2156	110	58		Six cylinders, in one casting.
Mercedes	Jenatzy Salzer Willy Poege	4 cylinders, in pairs	7.08	5.9	130	Simms-Bosch l.t. Magneto	Honey comb	Cent'f'l pump	Saurer pat., water-heated	Spiral spring	4 speeds & reverse, sliding gear	Chains	2288	110	55	Continental dismountable	
Christie	Christie or Louis Strang	4 separate steel cylinders, copper jackets	7.25	7.25	130	Heinz battery and coil	Winged tubes	Bucket pump	Breese, auxiliary air inlet	Inverted cone clutches	Direct drive, one low, and reverse	Direct front drive	1780	100	53	Christie dismountable, metal spokes	Fr't drive & st'ing, 4 steel cyl'rs 2 throw crank.

CHARACTERISTICS OF RACERS ENGAGED IN SPORTING COMMISSION CUP.

Gillet-Forest	De la Touloubre	4 cylinders, in pairs	4.3	4.7	40	Simms-Bosch l.t. magneto	Honey-comb	Cent'f'l pump	Sthenos	Metallic segments	4 speeds, sliding gear	Shaft	1848	106	51	Dismountable rims	Elastic transmission.
Darracq	Caillois Vivet	4 cylinders, in pairs	4.7	4.7	50	Simms-Bosch h.t. magneto	Winged tube	Cent'f'l pump	Darracq	Leather-faced cone	3 speeds, sliding gear	Shaft	1265	104	51		
La Buire	Dumaine Desseigne Mottard	4 cylinders, in pairs	3.7	4.7	30	Simms-Bosch l.t. magneto	Honey-comb	Cent'f'l pump	Semi-automatic	Metallic segments	4 speeds, sliding gear	Shaft	1716	108	53		
Porthos		4 cylinders, separate	4.3	4.7	40	Simms-Bosch h.t. magneto	Cellular	Cent'f'l pump	Parallel currents	Leather-faced cone	4 speeds, sliding gear	Shaft	1804	106	55		
Hisa	Baron de Caters Dompnier	4 cylinders, in pairs	4.1	4.7	30	Simms-Bosch h.t. magneto	Winged tube	Cent'f'l pump	Parallel currents	Hele Shaw metallic	4 speeds, sliding gear	Shaft	1760	106	53		V-sh'p'd h'd radiator tubes on h.

h.t.—high tension with sparking plugs. l.t.—low tension make and break. All machines have pressed steel frames. The Grand Prix and the Sporting Commission Cup will be run together on July 2. Machines in the former event are allowed 6.6 gallons of gasoline per 62.1 miles; those in the latter race have 3.3 gallons per 62.1 miles. Distances, 500 and 300 miles.

AMERICANS IN BRITISH TEST.

LONDON, April 2.—Everybody was not satisfied with the flexibility competition organized by the Crystal Palace Automobile Club. The idea was good, but the rules had been too hurriedly drawn up and, as events proved, favored too much high-power machines. The program provided for a run from London to Bexhill-on-Sea, 60 1-2 miles distant, and return, to be performed on top gear. In addition all cars had to cover a kilometer flying start at highest speed, and travel over a distance of 110 yards on high gear at the lowest possible speed, it being of course forbidden to slip the clutch.

Of the fourteen entrants ten came to the starting line and there were three six-cylinder cars, six with four cylinders, and one with two cylinders. America was represented by the six-cylinder Ford and the two-cylinder Reo.

Three hours were allowed for the run to Bexhill, all cars arriving safely except the Porthos, the mechanic of which slipped while adjusting the pressure valve on the petrol tank, the car running at high speed, and had his foot crushed by the rear wheel. The mechanic got on board again, despite his injury, but the machine did not officially make the return journey. On a private motor track at the top of Galley hill the machines underwent the speed tests, covering a kilometer course. This accomplished, all attempted the slow test on the high gear without withdrawing the clutch. The event caused much interest and not a little speculation among the spectators as to the reason for a machine, which a few minutes before had been rushing by at fifty miles an hour, reducing to a crawl of four miles.

On the return journey River hill had to be tackled, which, owing to two bends about half way up, made it very difficult to climb without dropping into a lower gear. The Napier, indeed, was the only one to successfully negotiate according to regulations. The six-cylinder Ford, which up to this point had been equal to the British six, considering its lower horsepower, had to change gears and thus lost its position. The Reo, the only two-cylinder machine in the contest, did remarkably well, its fast and slow speeds being better than some of the fours, and even better than one British six, while it only had to change gears three times. The following table shows the bare results for each car; the number of points gained, which determined the official position of the competitors, is given in the last column.

Car	Fast Speed M.P.H.	Slow Speed M.P.H.	Engine Stops	Gear Changes	Marks
60-h.p. 6-cyl. Napier	57.69	3.48	nil	nil	
40-h.p. 6-cyl. Ford	48.38	6.36	nil	1	1,294
24-h.p. 4-cyl. Courier	46.39	5.28	3	4	844
35-h.p. 4-cyl. Maudsley	40.54	5.16	1	1	416
28-h.p. 4-cyl. Mass	40.18	6.36	1	1	917
14-h.p. 4-cyl. Vulcan	39.13	4.75	nil	2	1,133
30-h.p. 4-cyl. New Engine	35.29	7.70	nil	9	499
30-h.p. 6-cyl. Brooke	34.61	6.36	1	13	422
16-h.p. 2-cyl. Reo	34.28	7.03	nil	3	805
24-h.p. 4-cyl. Porthos	34.28	7.70	withdrew.		

THE BOAT RACES AT MONACO.

MONTE CARLO, March 28.—The roar of exhausts now mingles with the murmur of the waves in the cliff-bound bay of Monaco. The first trainload of racers and cruisers arrived on a special train from Paris yesterday, are now being unloaded and tomorrow will have joined their voices to those already heard in the bay. Among them are the *New Trefle*, the Brasier production; *La Rapiere*, in which Panhard and Tellier have fond hopes; the *Panhard-Tellier; Pilot No. 1*, the steel kerosene-driven pilot boat; two from the Lorraine-Dietrich factory and a few cruisers.

Daimler II. and *Daimler III*, the two formidable British racers, arrived a few days ago and are now undergoing trials in the bay. They are looked upon as the most serious rivals to the French craft, and will certainly be difficult to beat in rough water. The two boats are forty feet in length and are both owned by Lord Howard de Walden. *Daimler II.* has three Daimler six-cylinder motors of 90 horsepower; its companion, *Daimler III.*, has a couple of 90-horsepower six-cylinder Daimler engines. *Antoinette V.*, with its light twenty-four cylinder 360-horsepower engine, built by Levavasseur, of aeronautical engine fame, has been at work in the open and has given the impression of being able to lower all world's records. Italy's hope is placed in the *Itala* to be piloted by Henry Fournier and driven to victory by a 135-horsepower Itala motor. The boat is now in the water, but has not yet given an exhibition of her fastest work. In addition, Fournier will have his own boat, *Itala II.*

On April 2 the boats will be brought ashore and will remain on exhibition in the open-air show one week, racing to begin on April 7. Cruisers are classified according to length and cylinder displacement; racers are in classes according to length.

According to *Herald* cable reports from Monte Carlo, the racing programme opened on Sunday with a contest for 20-foot cruisers with a maximum cylinder capacity of two liters and a half, in which twenty-one boats entered. Barely one-fifth of these succeeded in reaching home under the required conditions. *Capoulou III.*, steered by Despoujols, was the winner; second and third positions were taken by *Nautilus-Mutel I.* and *Gamine*, respectively. The winner covered the 31 miles in 26 minutes less than the winner in a similar race last year.

A 31-mile race for 26-foot racers without any engine limitation united *La Rapiere II.*, steered by Tellier; *Itala*, steered by Henry Fournier; *Fiat IV.*, steered by Gallinari; *Seasick*, with Baron de Caters at the wheel, and *La Mouvette*, with Gallice as pilot. *La Rapiere II.* finished first, covering the 50 kilometers in 50:50, or at the pace of 54 kilometers an hour. *Fiat XV.* was second in 57:36, and *Seasick* third in 1:00:50.

The general impression is that the mark boats dragged slightly, for it is hardly thought possible that the *Rapiere*, swift as she is, could have traveled at 33.53 miles an hour. A stiff land breeze caused a postponement on the second day.

CECIL EDGE IN 6-CYLINDER NAPIER. E. A. ANTHONY AND 6-CYLINDER FORD. H. GORDON SHARP, 2-CYLINDER REO.

TRYING out a car, as it is termed by the men in the shops, is a decidedly strenuous form of automobiling, about which the average autoist knows little and can form but faint conception. It is the next to the last step in the long process of evolution, and regardless of the painstaking care attending every advance in the constructional processes and the numerous inspections to which every component must be subjected before being approved, the manufacturer is not willing to stake his reputation on the chance of something having been overlooked—or worse, the ever-present possibility of the unseen and unknown flaw. Every part of a motor is thoroughly inspected before assembling and the motor itself is given a thorough test before it ever reaches the car, but after the latter has received all its mechanism it must be tested as a whole. It is at this point that the tester steps in; his instructions are merely to try the car out. The post is one that is sought by every man at the bench and at the machine tools, for the tester is selected for his ability as an all-around man; he is under less restraint and is better paid than the rest of the men.

Trying Out is a Gruelling Process.

As soon as the chassis is no longer the subject of attention on the part of the assemblers and adjusters, a rough, unpainted seat is bolted on it and it is turned over to the tester to be put through its paces. Rain or shine, he takes it out shortly after 7 A.M., turns up at the noon hour for lunch, and, that over, again resumes the task, which may be likened somewhat to the breaking in of a fractious colt. Though there is usually a "fleet" of these testers at every factory of importance, and they hang together more or less, the job is more or less lonesome and the tester is always glad of company—but the guest is not always anxious to repeat the experience.

One morning last week the writer turned up at the Lozier works at Plattsburg, New York, and having made his mission known to Superintendent William Perrin, was assigned to "Test Car No. 1," this being the sole mark of identification it carried. Well into the first week in April, one might reasonably have anticipated clear skies and a balmy atmosphere, but winter lingers on the shores of Lake Champlain, much of which was still covered with sheets of ice, and the weather as well as the temperature was more fitting for December than April. Sleet and snow alternated, and, borne on a driving northwest wind, did its best to detract from the small measure of comfort afforded by the perch beside the driver. The testing car carries as its sole ornament this pair of bucket seats, with occasionally a rough box bolted on the rear to accommodate tools—of either steps, footboard or running boards it is totally guiltless. You climb up and stay there as best you may. The driver has the clutch and brake pedals to brace himself against, the guest puts his feet where he can and braces himself like grim death against the suspicion of a footboard that extends below the dash—a bare two or three inches; the rest is yawning pit in which the flywheel and clutch may be seen whirring round—so smoothly as to convey but little hint of the actual speed at which they are turning.

With a quick shift into low, third, and then high, we are off in about the space of time it takes to tell it, and the motor is picking up rapidly over the rutty and frozen road. Before we had covered half a mile I had fully made up my mind that something essential had been omitted from the make-up of that car, and that something was the suspension. Lickety, bang, bang we bumped our way over ruts and thank-you-marms, at the sight of which the average driver would immediately declutch and slacken speed, the tools rattling and banging their way around the box on the rear and the guest doing his level best to maintain an average elevation between heaven and earth which would be bounded by the upper limits of the bucket seat.

Where, Oh, Where, Are the Mudguards?

Another half mile and we are beyond the town limits of Plattsburg; the low hum of the motor takes on a more business-like buzz and the wind and sleet cut keener. Then of a sudden two

CROSSING ONE OF LAKE CHAMPLAIN'S FEEDERS.

well-placed thumps on the back cause me to whirl around in anger, despite the precariousness of my position, to see what yokel has been hurling clods at us with such good aim. Just in the nick of time to make a deft duck and let an even more generous sized one go flying over my head. The driving wheels are the guilty parties; it had been thawing for a day or two previous and now a slight freeze has just congealed the mud enough to make excellent ammunition of it. Going at but the moderate pace of fifteen or twenty miles an hour, a five-inch tire can pick up half pound and pound chunks of the unsavory mixture and hurl it with a force and accuracy of aim that are truly astonishing—to the man who happens to be in their path. I glanced slyly at the driver to see if he were enjoying my discomfiture, but his eyes were all for the car and the road, while his ears were strained to catch the faintest out-of-the-way sound on the part of the motor or transmission. I noticed, too, that his coat bore the marks of many a previous plastering of the same order, and said nothing. Then in quick succession two well-directed missiles about the size of three-pound shells landed with vicious plunks on different parts of the camera and I made haste to protect the lens.

"Too much mud for you?" laconically inquired the driver.

Between holding himself and the camera within the limits bounded by the semi-circle of the seat and attempting to protect my face from the cutting wind and the flying chunks of half-frozen "goo" that were landing about me with an unholy swat every now and again, I was too occupied to indulge in needless conversation. An unusually vicious bump sent me skyward just at that time and in coming down my head piece wagged loosely, which must have been interpreted as a negation by the driver, as he resumed the business of seeing how hard he could make the car bump over that miserable apology for a road—at least, so I judged, for it was impossible to penetrate the all-enveloping hood and goggles. Anyone who thinks such trimmings savor unduly of affectation on the part of a driver needs but to put himself in the same position to appreciate their worth. On the finished car the mudguards blend with its lines and are part and parcel of the vehicle—their true value appears when they are not there.

THREE OF A KIND: TWO "FORTIES" AND A "SIXTY."

Scant Time to Heed the Scenery.

We were flying along the edge of historic Lake Champlain with its numerous cedar-covered islands, now on top of a ridge which commanded a sweeping view and the next moment dipping into a ravine which shut the lake from sight, or rolling smoothly across a bridge spanning one of the many streams that empty into Champlain. On the other hand, a few miles back one gets an occasional glimpse of the foothills of the Adirondacks between the rifts in the scudding gray and the swirling snow. But it is a poor time to attempt to appreciate the beauties of scenery; if it be true that the average tourist sees little or nothing of the beauties of nature as he scorches along, it is doubly so of the tester. He has an eye for nothing but the road, and those who

"HOWDY DO!" AND "GOOD-BYE!"

accept an invitation to ride with him must perforce pay attention to other things more intimately connected with their momentary welfare. Thus it is that the scenery comes in for scant attention at best; bad ruts with their twisting turns are frequently interspersed with those transverse gullies that have been so aptly dubbed "thank-you-marms," and an occasional sharp turn adds interest and variety by calling for a bit of side strain that relieves the monotony of everlastingly pushing forward with one's toes on the narrow strip of board to maintain a hold.

A swish out of the beaten rut and we have shot around one of those right-angled turns into a country cross-road. Not expecting it, I sailed skyward when we crossed the ridges of the deep rut and centrifugal force kept me heading the same way when I came down, so that my feet missed the board but fortunately landed on the frame. There is always the alternative of dropping outboard under such circumstances, or sliding into the pit formed by the pan to protect the flywheel, clutch and transmission, but whether there is much to choose between the chance of hitting the grit over hard or being assorted by the rapidly whirling machinery is a question. Neither looked particularly inviting, so I concluded that one hand was enough for the camera and supplemented my strenuous and tiring foot brace by grabbing the back of the bucket seat. Bumpety, bump we flew over the rough and little-traveled surface, heading back from the lake and straight for the mountains. Just enough snow to make things

slippery and a four-foot ditch on either side of the narrow, high-cambered road added an extra spice of danger. An untimely skid bringing up in the stagnant pool at the bottom of one of those ditches would have meant the end of that test run, for little short of a derrick would suffice to get the car back on the road again. But another mile or two of it and then we began to climb a bit, soon coming out on the road to Peru, N. Y.—a little town about twelve miles from the Lozier factory. This is an almost straightaway stretch of fine, hard macadam that formed part of the route of last year's Glidden Tour. It is here that the Lozier testers make their speed trials.

The Tester Knows No Speed Limit.

I thought we had been covering the ground at a very respectable pace before, all things considered, but once on the smooth way the driver opened the throttle, notch by notch, and the car fairly jumped ahead. There was still two-thirds of the sector for the throttle to travel, but we were flying along with the wind screaming by and the fine, hard grit from the road cutting my face like a whiplash. If the car ate up distance in that fashion with the throttle but a third of the way open, it seemed like tempting fate to make it possible to open it any more, and I instinctively hoped the muffled and immovable figure beside me, gazing straight ahead, would at least not attempt to fracture any world's records in the same informal way that legal speed restrictions had been strewn by the wayside.

But still another notch and a further spurt on the part of the motor until we seemed no longer to be traveling on terra firma. Anyone who wishes to realize the feelings of the driver of one of the cars in the Vanderbilt Cup race can do so with slight effort—the average tester will take him along, stretch after stretch, at better than a mile per and above a certain limit the sensations become dulled; there is no further appreciation of the rate of travel, regardless of how it be increased.

We were scudding along at this rate when a spot appeared around a bend down the road and came toward us at a similar pace; it was another of the Lozier testers. The slightest nod on the part of the drivers as the sole sign of recognition and we had passed with a swirl and a rush. With confidence born of familiarity, I half turned in my seat and "rubbered" back down the road we had just come over to see how fast the other fellow would disappear. He had hardly gotten a half mile away when he met another of the swiftly traveling spots; it was a third tester and his car, this time coming our way. He had a "sixty" and we but a "forty," so that there was small use in trying to run away. With a rush he swept by us and we trailed in to the finish at Peru. A quarter of an hour later a third tester dropped in and they fell to comparing cars and swapping experiences.

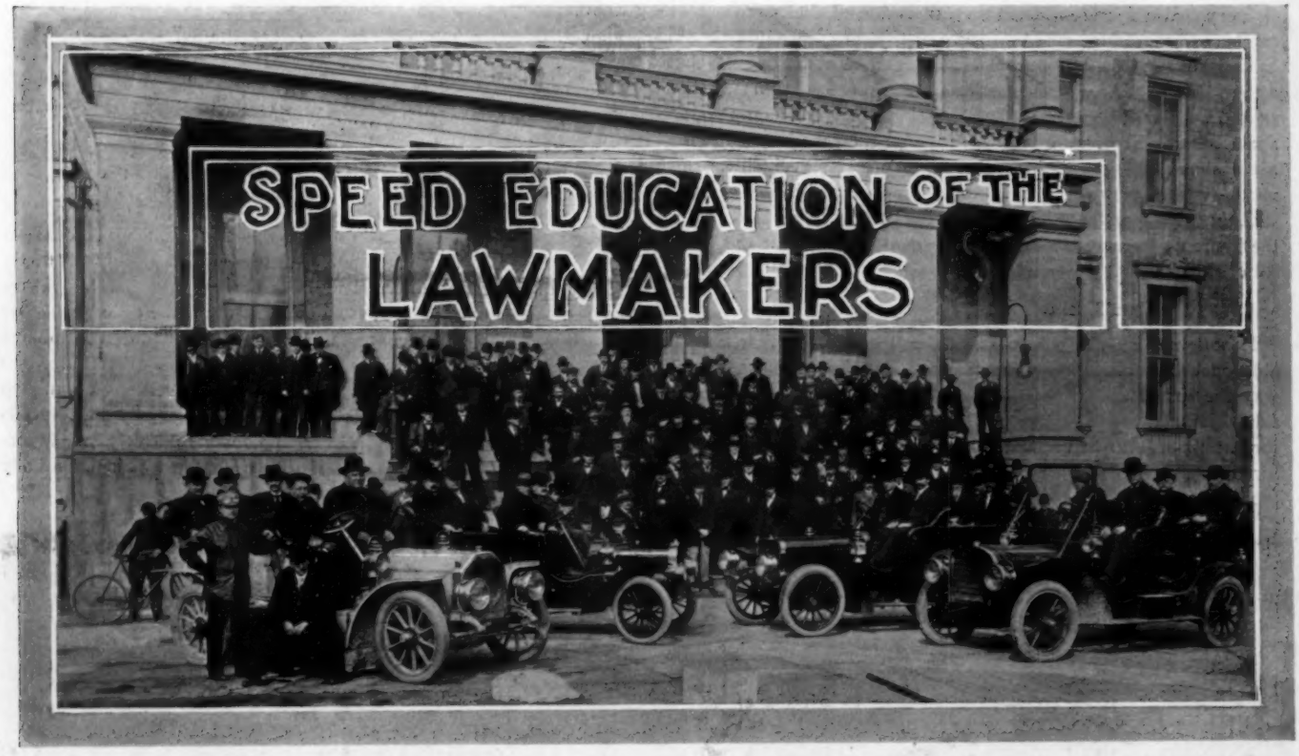
Several Days Required for Thorough Tryout.

From the moment that the car is turned over to the tester until having received his final stamp of approval which precedes its wash-up, preparatory to shipment, its history is closely followed. Every drop of gasoline, oil and water that it requires are recorded—every hour that it is on the road and the mileage it covers during its novitiate are all carefully noted and the finished record is of considerable interest. Several days are required to complete the process, on each of which it averages about 100 miles or more over all kinds of roads and at the highest speeds of which it is capable. It is carrying but a relatively small portion of the load for which it is designed in the shape of body and passengers and its springs are stiff.

ON PICTURESQUE CHAMPLAIN'S SHORES—THE STAMPING GROUND OF THE LOZIER TESTERS.

If there are any defective leaves or poorly fastened shackles it does not seem possible that they can fail to yield to the unmerciful gruelling they are put through day after day on their test; that anything loose or defective can survive this treatment seems beyond belief, for it is putting it mildly to say that in each of its seances in the hands of the tester it receives far more and far harder service condensed into a few hours than it is apt to get in the same number of days at the hands of the average owner. If the latter be sensible, he takes advantage of every opportunity to save his car and his tires, but it is the tester's business to bring out the defects if they exist, and tires mean nothing to him. Not that it is any pleasanter a task for him to jack the unwieldy shoes off and on to replace a tube than for anyone else, particularly in the nasty weather that forms a large part of his lot—it is simply all in the day's work, and unfortunately punctures are many, far too many to please either the driver or the builder of the car, but there is no way to avoid them, and in view of the test that they are put to the wonder is not that they puncture as frequently as they do, but that they manage to stand up at all.

Testing is a strenuous occupation for both car and driver, and after a car has been through such a mill it may well be said that accidents due to defective parts are unavoidable.



HOW DROUGHT TAUGHT THE LAWMAKERS.

MILWAUKEE, WIS., April 8.—Educating legislators in autoing is quite a new proposition, but it was done with some remarkably good results a few days ago. Through the efforts of the Milwaukee Automobile Club and James T. Drought, a practical demonstration was given to the legislators of what the various speeds from six to forty miles an hour really are, and the ease by which an automobile can be stopped and controlled was quite a revelation to the majority of the members. The latter courteously consented to be taken for thirty to forty-five minute spins for practical demonstrations about the city of Madison.

Mr. Drought, who planned and executed this unique campaign, earned for himself the title "Star Lobbyist" of the 1907 season. He assisted greatly in getting and keeping the legislative body in good humor, so that they managed to look pleasant when a photograph was taken. In speaking of the idea recently, Mr. Drought mentioned that much of the credit for the effective work belongs to August Jonas and his Peerless, and Frank Roessler, a seventeen-year-old driver. These two skillfully and convincingly demonstrated the claims made in behalf of the auto, and many of the legislators saw a great light.

CONNECTICUT SUGGESTS LAWS CONFERENCE.

HARTFORD, CONN., April 8.—As a result of the two recent hearings before the Committee on Roads, Bridges and Rivers of the Connecticut Legislature there may be a conference of legislators from New England and adjoining States. It was Senator H. P. Buell, chairman of the committee, who suggested the advisability of such a conference, and he has written to the Secretaries of State of Massachusetts, Rhode Island, New Hampshire and New York, looking forward to a conference in the future.

Judging from the recent hearings at Hartford, it would appear that the Connecticut State Association of the A. A. A. will be successful in securing equitable legislation, there being no outburst of hostility and the committee showing by its attitude a desire to be eminently fair from the standpoint both of the automobilist and the public. Walter S. Schutz, the attorney for the Connecticut association, is at work upon a substitute bill, and, being particularly fitted for the task, a measure is anticipated which should be satisfactory to the legislators.

At the first hearing the speakers included Mayor George M. Landers of New Britain, who advocates a State tax upon automobiles, providing the money is to be applied to the maintenance of the State roads; J. Howard Morse, president of the Hartford Automobile Club; Frank Miller, president of the Bridgeport Automobile Club; Colonel George Pope, Pope Manufacturing Company; H. P. Maxim, Electric Vehicle Company, and A. L. Riker, Locomobile Company of America. Charles T. Terry, chairman of the A. A. A. Legislative Board, made a splendid address, which included many convincing arguments.

Connecticut automobilists are discovering that a decided sentiment seems to tend toward leaving out entirely the rates per mile per hour, and make the speed provision dependent entirely upon the width, traffic and use of the highway.

HOOSIERS MAY HAVE TO REGISTER AGAIN.

INDIANAPOLIS, IND., April 8.—The publication of the laws passed by the recent Legislature of this State has disclosed some facts in connection with the new automobile law not generally known. The law was hurried through the closing days of the session and very little attention was paid to it.

Probably the most startling feature that has developed is the one that will require all owners to obtain new registration numbers and in all probability to pay a second fee for registration. The new law changes the system of registration and, as the Secretary of State will be required to issue a new number, it is his opinion that a new fee will also have to be forthcoming.

PREDICTS UNCHANGED NEW JERSEY LAW.

NEWARK, N. J., April 8.—This is from the *Sunday Call*: "With the exception that there are not enough inspectors to properly care for the business arising from the enforcement of its provisions, the New Jersey automobile law which was passed last year has been found to work not so unsatisfactorily as was at first anticipated. Considerable tinkering with the law, through legislative enactments this year, was proposed, but it is not likely that any will be done."

CHAIN DRIVES AND THEIR CARE AND REPAIR

By VICTOR LOUGHEED.

PROBABLY no detail of automobile construction is more strenuously defended or more decidedly denounced than the chain drive, anomalous though such a condition may seem. And concerning nothing else in motordom has there been waged so long and vigorous a drawn battle as that between the chain and the propeller shaft, which never yet has failed to furnish occupation to the statisticians of the industry.

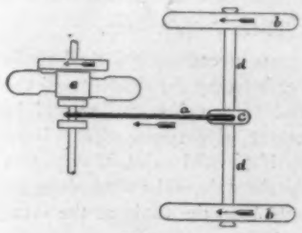


FIG. 1.

The real crux of the matter, when all comparisons are made and inconsistencies reconciled, seems to be that a chain drive is exceedingly good or astonishingly bad, according to how it is designed and taken care of.

Types of Chain Drives.

There are two common types of chain drives, the single-chain drive and the double-chain drive. The first is applied exclusively to rotating, or "live," rear axles; the second to non-rotating axles. Also, the single chain is now used only on small, light cars, while the double chain finds its chief place on the heaviest and most powerful machines.

The Single-Chain Drive generally conforms to the plan sketched in Fig. 1, in which *a* is the chain driving the rear wheels *bb*, through the sprocket at *c* on the rear axle *dd*. The motor is sketched at *e*, and it will be noticed that this type of drive requires the engine be placed crosswise of the car, so that its mainshaft is parallel to the rear axle. The drive is not necessarily to the center of the axle, as in the case pictured, some few cars having the axle sprocket located very close to one of the wheels.

The Double-Chain Drive, in its most characteristic form, is sketched in Fig. 2, in which *aa* are the chains, driving the rear wheels *bb*, directly through the sprockets *cc*, the rear axle *d* being non-rotating. The engine, *e*, is placed longitudinally in the car, so the power is communicated from it to the chains by the bevel gears at *f*, and thence by way of the countershaft *gg*, and the countershaft sprockets *hh*, which are just outside frame.

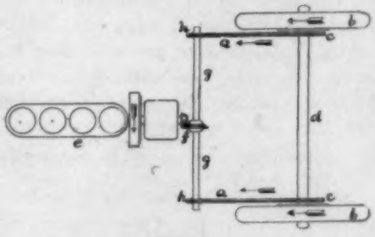


FIG. 2.

Much of the efficiency of the chain transmission is due undoubtedly to its flexibility and to the fact that it transmits power by a perfectly direct pull. A bevel gear, which has to transmit power "around a corner" cannot even in its best condition be quite as efficient as a chain likewise working in its best condition. As for the spur gear, which like the chain acts direct, its failure to show up as well in some tests may be due to the difficulty of maintaining the gears in the absolutely perfect alignment that is essential to the best results with this sort of machinery. A chain, on the other hand, will work just about as well with its sprockets material out of line as it will when every adjustment is perfect.

A great advantage of the double-chain drive is that it permits the use of a very light rear axle, which is relieved of the weight of the bevel and differential gears and therefore is little subject to the danger of bending from hammering over rough roads.

The Disadvantages of Chain Drives practically all result from the one difficulty of keeping the chains clean, though it is sometimes urged as an argument that the many parts and many bearings of a chain constitute a not-inconsiderable complication. Also, it must be remembered that, whatever the efficiency of the actual chain drive itself, it is usually used in addition to all the gears and bearings that are present with the propeller shaft drive. The single-chain drive, of course, avoids this criticism.

The Different Kinds of Driving Chains.

There are two principal kinds of chains used in automobiles—the block chain and the roller chain. A third type—generally styled the "silent" chain—is used to some extent for a first drive from the engine, or under other conditions that permit of its thorough protection from mud and dirt.

FIG. 3. FIG. 4.

The Block Chain is illustrated in Fig. 3, its characteristic feature being the alternation of the blocks *aa* with the pairs of links *bb*, *cc* and *dd*. Block chains are now little used for vehicle propulsion, except on bicycles and the very lightest automobiles, because when they are dirty the blocks wear very rapidly, besides wearing the sprockets in a similarly serious degree. This objection can be avoided by the use of chain boots.

Roller Chains are of the sort shown in Fig. 4, being constituted entirely of links *aa*, *zz*, *cc*, *dd*, and *ee*, with small rollers *fff*, to work against the sprocket teeth.

Theoretically, any good chain, block or roller, will engage with and disengage from the teeth of correctly-cut sprockets without any sliding contact whatever. Practically, it is found impossible to cut sprockets to such perfection, besides which, if they were so cut, the least wear would spoil them. And films of dirt between chain and teeth would cause rubbing and wear. These various difficulties roller chains overcome by providing a smooth-working interior bearing, protected and lubricated, to hold off what otherwise would become destructive abrading forces. Theoretically, the conditions should be such that the rollers would not roll, but practically they do, which proves the necessity for providing the chain with them.

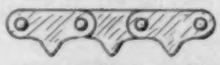


FIG. 5.

Silent Chains are of the general description sketched in Fig. 5, the teeth being on the chain links and the rollers, if rollers are used, being on the sprockets. Many silent chains work on toothed sprockets. Silent chains can be worked successfully in very much shorter lengths than prove practical with other chains, and can be built to run very fast and to transmit great power. Some of them are literally belt-like in width, being composed of multitudes of adjacent links.

The Material of Chains, while always steel, varies somewhat in quality. Since the highest possible quality is to be desired, most prominent manufacturers are now making chains of the better alloy steels.

FIG. 6. FIG. 7. FIG. 8.

Care of Chains.

Proper care, as has been suggested, is vital to success in the use of chains. It is not enough to have correct chains and correct sprockets—proper maintenance is as important as a proper start.

Commencing with a new car, the initial tension on the chain must be maintained, despite "stretching," by occasional readjustment of the radius rods. There is no such a thing as a chain really stretching, in ordinary use, in the sense of an elongation of the metal of which it is composed, but what does occur produces practically the same effect—a hundredth of an inch

wear at one hundred rivets making the chain an inch longer. In time, as the chain lengthens, it will have to be replaced, because the space from the bearing point in one link to the bearing point in the next will be so much longer than what should be a corresponding space between the sprocket teeth, that smooth operation will be impossible.

Replacement, in fact, is a very good and sensible policy with chain drives, to apply every so many miles, charging the comparatively small expense against the mileage, just as in the case of tires, fuel, etc. The best modern cars now are made with readily-removable sprocket rims, so replacement of the whole driving aggregation is as simple as it is inexpensive. And certainly nothing could be more expensive than to continue worn parts in use when new ones cost very little.

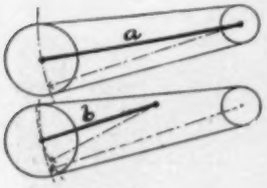


FIG. 9.

Protection of some sort, as by the use of chain boots, is much to be commended from every sound standpoint, though it is to be admitted that the generality of chain boots so far produced are somewhat unsightly. A simple expedient for partially protecting chains, which has been to some extent used with motorcycles, requires only a light, soft leather belt, stretched over the chain and allowed to run with it. A belt used in this manner will form itself over the chain until it protects all but the inner surface.

The Adjustment of Chains is very important, for, though a chain will run remarkably well when out of adjustment, it will run much better when in. A very loose chain is particularly bad, because when running it whips up and down in such a way as to flex and wear the joints very considerably. It is also likely to "climb" the sprockets, through a roller or block striking on the top of a sprocket tooth, and this occurrence will certainly result in a broken chain, if in nothing worse.

A chain too tight will wear itself and sprockets rapidly through the heavy stresses it maintains on all rotating parts, and it also is likely to respond so sharply in starting or accelerating as to break through the sheer suddenness with which it takes on loads.

To adjust a chain, a safe general rule to go by is to have it as loose as it may be without its being possible with a stick or rod to pry it free from the first tooth with which it is meshed on either front or rear sprocket.

To Clean a Chain, remove it from the car and, after wiping all surplus grease and dirt that can be removed with some waste or old rags, immerse it in a pan containing gasoline or kerosene—preferably the former, if quick results are desired. After letting the chain soak long enough to loosen the dirt on it, shake it in the fluid, or, if necessary, brush it with a coarse brush, until it is perfectly clean and every link works freely. If very dirty, a final rinsing with gasoline—whether this fluid or kerosene is used for the first bath—will expedite matters. When the chain is dry, it must be lubricated, preferably by working it around in a molten mixture of tallow and graphite—a compound that is to be had of any dealer in automobile supplies. In this way a sort of a bushing of graphite is worked into each joint, where it will remain and lubricate for thousands of miles.

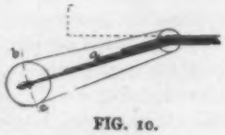


FIG. 10.

Spare Parts for Chains, in the way of extra links, rivets, etc., always should be carried. Even a complete extra chain does not weigh much nor occupy much space, and always is likely to come in handy.

Chain Fastenings, by which the chain can be separated to remove it, take various forms. That shown in Fig. 6 is very common and very simple, consisting of a small bolt in place of one of the rivets, with a hexagon nut that can be easily removed. The system shown in Fig. 7 is in a way similar, except that an elongated rivet is used to link together the chain ends, and is itself held in place by a split pin passed through a small hole in one end. The links in Fig. 8 are alternately provided with slots and headed rivets, so that they can be put together or taken apart by hand, but cannot separate when the chain is under tension.

Oftentimes, when a chain has stretched considerably, it becomes necessary to remove one or more links after the radius rods have been lengthened as far as they will go. To do this, it probably will be necessary to file off some rivet heads, unless the chain is made like Fig. 7 or Fig. 8 throughout its length, in which case the task is a simple one. Be sure not to remove a link before ascertaining whether or not its removal will shorten the chain more than can be allowed for by shortening the radius rods.

The Radius Rods and Their Adjustment.

Radius rods or some equivalent are necessary with all chain drives, to maintain a proper distance between the driving and the driven sprockets. The forward end of a radius rod should be pivoted at or very close to the center of rotation of the front sprocket, as sketched at *a*, Fig. 9. If pivoted as at *b*, Fig. 9—a construction seen on some old cars—the axle will swing along an arc different from the one that would keep the chain at the same tightness, as is shown by the dotted lines.

FIG. 11.

Radius-Rod Bearings require more attention than is commonly considered necessary and are adjustable or arranged for rebushing on many good cars. The constant motion wears them rather fast and when they are loose they cause a destructive and annoying pound. Regular lubrication, preferably by a grease cup, is desirable.

Springs as Radius Rods are a not uncommon construction, as is shown in Fig. 10, in which the quarter-elliptic spring *a* serves to maintain the chain distance, its movement being practically along the dotted line *bc*.

The Adjustment of Radius Rods usually is effected by a turnbuckle, as at *a*, Fig. 11, or by a screwed-in end, as at *b*, Fig. 11. It is very important not to get the radius-rod adjustment on one side different from the other and if the chains vary in length it is better to have one too loose or too tight than to correct it by putting the rear axle at other than a right angle across the car. Measuring with a tape from front hubs to rear hubs will disclose any error in parallelism between the axles, if the steering is set for straight ahead.

Concerning the Sprockets.

Sprockets, like chains, should be kept as clean as possible, and renewed when worn. Some sprockets are made to reverse, so that they can be turned around and both faces of the teeth used. It is also important to keep sprockets as nearly in line as is possible, though a slight twist in the chains is unavoidable in running over rough roads, or if the rear wheels are cambered and the countershaft is straight. On some cars the countershaft sprockets are allowed some end play on squared shaft ends, to maintain alignment in swinging around curves.

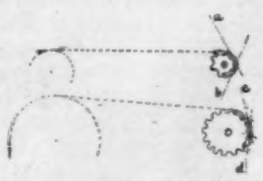


FIG. 12.

Sprocket Size is very important—the larger the sprockets are within certain limits the better. Large sprockets increase chain speed and reduce chain pull for a given effort transmitted. Besides this, they reduce the angle or flexion between chain links, as shown in Fig. 11, in which the lines *a b* show the bending over a small sprocket, and the lines *c d* show it over a large sprocket, the gear ratio being the same in both cases. This point is of very great importance in reducing chain wear, because such wear is very closely in proportion to the amount of bending in passing over the sprockets. With larger sprockets all trouble from this source disappears.

LETTERS INTERESTING AND INSTRUCTIVE

Information Wanted Regarding Lava and Porcelain.

Editor THE AUTOMOBILE:

[690.]—Can you tell me through the columns of your paper the following:

What is lava as used in insulators for jump-spark plugs? What is the formula to make same in such forms; how is it hardened and by what process; how do they put a fireproof glaze on porcelain plug insulators, and what degree of heat is used, and what is the mineral used to make such a glaze; why is not lava better than porcelain, and which is the harder? Why is not lava more used than porcelain for automobile plugs?

A detailed answer in your next issue will be appreciated.

Buffalo, N. Y. W. De S.

We find your questions are somewhat out of our province and can hardly give explicit answers, but have no doubt that some subscriber to whose notice this comes may be able to supply the information desired. We have no idea as to the ingredients used in the composition of what is commercially known as lava, except that it is a sort of artificial stone, nor as to the process it goes through, but are under the impression that it is a proprietary compound and that the formula is a trade secret. There are innumerable formulæ for hard porcelain glazes such as you mention, according to the purposes for which the article is to be used, and according to the maker. The following is said to produce a very hard glaze, capable of standing a high temperature: Feldspar 18 parts, Cornwall stone 3 1-2 parts, whiting 1-1-2 parts, oxide of zinc 1 1-2 parts, and plaster Paris 3-4 part; we do not know how high a temperature is used. We do not know to a certainty, but think porcelain is the harder of the two, and have no idea as to why lava should not be the better material for the purpose. Your next question would appear to carry, not alone its own answer, but that to your previous one; we presume that if lava were a superior material from which to make spark plugs it would be used more commonly than porcelain. However, lava has been tried in several instances, so we have no doubt some reader who had had experience with plugs of this kind will come to our rescue by supplying a little more definite answer to the foregoing questions.

Some Queries Regarding a French Motor.

Editor THE AUTOMOBILE:

[691.]—Will you kindly explain under "Letters Interesting and Instructive" of what particular use is the communicating pipe "K" in Fig. 1 of motor under head "A New French Recruit to the Two-Cycle," on page 553, in the issue of March 28. Does the compression in "E," caused by the downwardly-moving piston "A," have any tendency to push down the second piston "B"? If not, would not two openings, one on crankcase and one at high point of entrance of pipe "K" be equally satisfactory?

Then again, what means are taken or could be taken (to advantage) to lubricate the inner wall against which piston "B" is bearing? B. M. C.

The object of the pipe *K* is fully explained in the last paragraph of the description referred to, on page 554, in the issue mentioned. We presume the crankcase compression at *E*, caused by the descent of the piston *A*, may have a slight effect on *B*, particularly as the latter causes a certain amount of depression which would tend to increase this action. However, as mentioned in the description, its sole object is that of lubrication; as also outlined in the former, the oil in the crankcase is relied upon for lubrication almost entirely, by splash for the connecting rod ends and by means of the oil carried through *K* by the air circulation for the pistons. Just how this oil is brought into contact with the wall *F* against which *B* bears, does not appear, nor is there any mention made of it in the original French description, which leaves considerable to be desired in the way of detailed explanation.

Putting Copper Water Jacket in Place on Cylinder.

Editor THE AUTOMOBILE:

[692.]—Will you kindly let us know what you think is the best method of attaching an independent copper water-jacket as per accompanying sketch? The cylinders are cast in pairs and the jacket is too small to slip over either the base flanges or the heads

VIEW OF PROPOSED METHOD OF JACKET ATTACHMENT.

on account of the valve pockets. Would you wrap the jacket round the cylinder, making a double seam where the ends meet, and then calk the upper and lower edges into the grooves on the cylinder? R. W. B.

Bryn Mawr, Pa.

It looks very much to us as if one or the other part of your design would have to be altered in order to carry out the project of using an independent copper water jacket as you propose, as we cannot see how you are going to make a serviceable joint in the jacket itself after wrapping it round the cylinders as you mention. It may be possible to do it, but considerable sleight of hand would be required, and it is doubtful if a good job could be made of it in this way. This would constitute a weak link in the jacket, even if it could be done without a great deal of trouble. It is customary under the circumstances, to make a jacket of one piece so as to be seamless, and slip it on over the lower ends of the pair of cylinders. Either a copper or a soft steel ring may be used for calking, this usually being seated under heavy pressure.

Obtaining Calorific Values of Different Fuels.

Editor THE AUTOMOBILE:

[693.]—Will you kindly inform me how or what formula was used to obtain the B. T. U. which is published on page 469, issue of March 14, in which is given acetylene equals 21,492 B. T. U. when it equals $C_2 H_2$, and gasoline as 21,900 B. T. U. when it equals $C_6 H_{14}$, alcohol equals 28,500 B. T. U. when it equals $C_2 H_6O$, the alcohol must be less owing to the presence of oxygen.

Formulas for the three liquid fuels:

First: 8080C plus 34.462H per kilogram.

Second: 8080C plus 34.462 (H minus 1/8 O).

Is not this correct? R. C. MATLACK.

Chicago, Ill.

Your question as to what formulæ were used in obtaining the calorific values you mention is somewhat puzzling. We have never heard of the use of formulæ in this connection, the heat values of different fuels being obtained, as a general rule, by actual test with the aid of a calorimeter, of which the Junker and Sargent instruments are familiar examples. The alcohol referred to on this connection was absolute alcohol and, in consequence, of a very much higher heat value than ordinary commercial alcohol.

Bicycle Not a Good Foundation for Motorcycle.

Editor THE AUTOMOBILE:

[694.]—Will you kindly answer the following questions through your valuable journal and oblige a "would-be motor-cycle builder"?

I have a 1906 model Spalding (Nyack) bicycle, and am contemplating adding a gas engine later in the summer. Do you think the frame of my bicycle is strong enough to hold a gas engine, or would it be necessary to add an additional frame of strong iron pipe, or similar material, suspended from some point near the crown of the frame or the hub of the rear wheel? What would be the best means of transmitting power to the rear wheel? I have a coaster brake. Would it be possible to have a coil spring between

the front fork and the crown of the frame to avoid jars and vibration, or would you consider it more advisable to use a new front fork? Finally, where could I get such an engine that would fill the bill as to weight, etc.? Also, have you any idea as to the price of same, and could it be done any cheaper than to buy a second-hand motorcycle? H. HART.

New York City.

We should certainly not recommend you to attempt to convert an ordinary bicycle into a motorcycle, for reasons which should be apparent to you on a moment's consideration. Take the matter of weight alone, say your bicycle weighs 25 pounds; the average light motorcycle weighs 110 pounds, more or less, so that it will be evident there is nothing whatever on your present machine designed to carry this weight, not to mention the vibration, which is a very important factor. You would need new spokes, new rims and larger tires as well as a new front fork and a new frame; after deducting these from what you have, it will be somewhat difficult to find any foundation left upon which to build a motorcycle. Of course, it is possible to strengthen the frame you have, but iron pipe is not exactly a suitable material for the purpose; your present wheels and tires might also stand the racket for some time, but the machine would be a poor one at the best and apt to prove dangerous, if it ran very long without shaking to pieces. Buy a second-hand motorcycle, and even though you have to be content with one of two or three years ago, you will doubtless find that its designer knew more about building them even then than you are apt to have acquired through observation; what is much more to the point, you will be considerably in pocket.

An Air-Driven Aspirant for Vanderbilt Cup Honors.

Editor THE AUTOMOBILE:

[695.]—Will you kindly answer the following questions in your "Letters Interesting and Instructive" column?

(a) Would a four-wheeled machine driven by air propellers and fitted with a type of aeroplanes for assistance at corners be classed as an automobile, and would it be eligible to enter the coming Elimination trials for the next Vanderbilt Cup?

(b) Would such a machine or would a car be allowed to carry three men in the race? McG. D. & CO.

Philadelphia, Pa.

(a) As there is no precedent to be guided by in the matter involved in your first question, we can only give an opinion, but as there is nothing in the rules that prescribes the form of power nor the manner in which it is to be used to propel the car there seems to be little doubt but such a machine as you mentioned would be eligible.

(b) The rules restrict the crew of the car to two—the driver and an assistant or mechanic.

Unequal Compression in Two-Cylinder Motor.

Editor THE AUTOMOBILE:

[696.]—Will you kindly give me some information on the following: A customer of mine has a two-cylinder runabout; several months ago he scored one cylinder; I have had that rebored, now I do not get the power that I ought to. One cylinder is 1-8 of an inch larger than the other, yet I get the most power from the small cylinder. This car has only one carbureter; according to my idea I can't adjust the carbureter to suit both cylinders. I get good compression on both cylinders. Do you think by putting on double carbureters I will get the original power?

Columbia, S. C. A. T. GIBBES.

We do not favor the idea of two carbureters, as it is extremely difficult to synchronize them so as to get the same results from each cylinder, the only designer that ever resorted to this expedient discarding it after two years' use. While you state that the compression is "good" in both cylinders, with nothing further to go by we are inclined to the opinion that it is not as good in the cylinder that has been rebored as it is in the other, and the only way to test this would be either by using a gauge or taking indicator cards of the two cylinders. The fact that one cylinder is an eighth of an inch larger than the other has little bearing on the case if the compression is poor in the larger one. You do not mention anything about a new piston being obtained for the larger cylinder after the reboring operation, and if this has not been done no doubt the trouble will be found there. At all events it would do little or no good to multiply evils by attempting to make two engines out of one, which is virtually what you would be doing by using two independent carbureters.

Use of Pickling Solution as a Scale Remover.

Editor THE AUTOMOBILE:

[697.]—In a recent number you advocated the use of a 10 per cent. oil of vitriol (sulphuric acid) solution to clean radiators. Are you sure of your facts in this case? Even 10 per cent. oil of vitriol is very corrosive, it being the most corrosive of all our acids, and it seems to me that it would attack the copper and the solder of the radiator and the iron of the cylinders vigorously and do harm rather than good. If I am right, the recommendation by so prominent a journal of this measure would injure many cars. Please investigate your facts and let me know your results. The only other thing which I know of that works well is a strong solution of carbonate of soda, the washing soda of our household, not the bicarbonate, which is cooking soda.

Asheville, N. C. CHAS. L. MINOR, M.D.

You are quite correct in stating that even a 10 per cent. solution of sulphuric acid is quite corrosive and will attack metal vigorously, but before it reaches the metal it must attack the furring or scale, and if the draincocks be opened occasionally and the solution drawn off as previously recommended, there is no reason why any injury should accrue. Naturally, if such a solution were poured into a radiator and permitted to stand over night, damage would be apt to result. The mixture is what is known as a pickling solution and is very largely used, particularly by electro-platers, for cleaning articles of brass or copper preparatory to plating. We do not recall the letter in the answer to which the statement you take exception to occurred, but if we remember aright, the request was for a cleaning solution that would be effective in a bad case. Carbonate of soda, especially when used hot, is an efficient cleaner, but there are probably many forms of deposits, such as those resulting from the extremely hard waters prevalent in the West, which would not be affected by it. If you wish to satisfy yourself that such a solution can be put into a radiator with perfect safety, make up some of it in a glass and put a few small pieces of sheet copper, brass and cast iron in the latter, and note the length of time it is possible to let them remain without being seriously corroded. Unless we are mistaken, we believe we recommended the inquirer to draw off some of the solution from time to time to note how it was working and to empty it out as soon as it ran clear, subsequently flushing the circulating system out thoroughly with fresh water to remove every trace of the acid.

What Causes One Cylinder to Make More Noise?

Editor THE AUTOMOBILE:

[698.]—I run a four-cylinder car of popular make, and of late I have discovered that one explosion of the four is considerably louder than the other three. This louder explosion is very much in evidence when the car is climbing hills on the high gear. I know which cylinder gives the louder explosion, which is No. 2, as I have held down the vibrators one at a time and when I hold down the No. 2 vibrator the loud explosion ceases. I thought it was the vibrator spring, so I put a new one in, but it did not help matters at all. I also have tested the plug in cylinder No. 2, and found it all right. If you can give me any light on the cause of this trouble I will be greatly obliged.

Westfield, Mass. LELAND M. GILMAN.

Though apparently simple on its face, this is in reality a somewhat puzzling thing to account for. If the cams be not made integral with the camshaft, we should suggest taking a look at the latter at the cylinder in question. It may be either that the inlet cam has been shifted somewhat so as to give higher compression and a more violent explosion, or, what seems more probable, that the exhaust valve may have been moved slightly, causing it to open in advance of the

time intended, thus releasing the burning charge at a very much higher pressure than is the case with the other cylinders and making a correspondingly greater amount of noise. Then again, there may be a leak in the exhaust manifold at that cylinder, permitting the escape of the burning charge there, which would tend to make the explosion of that particular cylinder much more audible than the others. Naturally, the foregoing can only be surmises under the circumstances, and we should like to learn what you find to be the cause of the trouble.

The Easiest Way to Repaint an Old Car.

Editor THE AUTOMOBILE:

[699.]—I have a Pope-Toledo car with part of body aluminum, from which the paint or enamel is scaling off. I wish to have it repainted, but being too far away from skilled workmen in this line, I would be very thankful to be informed through "The Automobile" under the heading "Letters Interesting and Instructive" whether there are any prepared paints or enamels to be had that will wear and look well, and which can be applied by a fairly good carriage painter. If, in your opinion, there are such paints on the market, kindly give me the address of some firm in Chicago or Minneapolis from whom the same may be obtained. Also, will you kindly inform me thoroughly about the different coats, from prime coat to finish, and how best to remove the old paint.

Anamoose, N. D. D. ERENFELT.

There are no doubt many good prepared paints and enamels on the market; you will find some of them advertised in our columns; write to the makers direct. We cannot recommend any of them from personal experience. Good carriage painting involves not only a great many coats, from ten to twenty or more, but also a great deal of care, and the directions involved would greatly exceed our space limits in this department, beside which we hardly think the subject is one of sufficient general interest to our readers. We should recommend buying a book on the subject. Unless you have a considerable fund of patience and leisure time, we should not recommend undertaking the job at all, as it is a very tedious one at the best. The easiest way would be to remove the body and ship it back to the factory, if the latter will do such work; if not, to the nearest carriage painter.

Christie Racing Car Steers by Front Wheels.

Editor THE AUTOMOBILE:

[700.]—Being a reader of your paper, I take the liberty of asking a few questions: Can you tell me whether the Christie car in the last Vanderbilt race steered with the front wheels, or did it steer with the rear wheels? HARRY WALLACE.

Brooklyn, N. Y.

The Christie racing car referred to in your letter was steered by the front wheels the same as usual, as in fact has been the case with all the cars built by this designer, so far as our knowledge goes.

AN AMERICAN'S ADVICE TO THE "INVADERS."

Editor THE AUTOMOBILE:

[701.]—The American invaders do not expect to be received with open arms, of course, by their European confrères. However, I doubt if they quite realize the degree of hostility that the proposed invasion has provoked among the automobile clubs, as well as among the trade.

As an American automobilist living in France, I can only hope that the coming invasion will hasten the day when American automobiles will be found for sale in every French town. That would mean that the price of French cars had descended from its present lofty altitude.

When I look over the advertisements in "The Automobile" and see the ever-increasing numbers of high-powered runabouts and touring cars offered for sale at what seem here to be incredible prices, I sigh and think of what my poor little 10 horsepower runabout cost last year. The only consolation is that the same runabout costs $500 more this year than last!

Thus the prospect of being invaded has my entire sympathy.

Judging from the comments of the Parisian press, our American invaders must not look for any good will or kind feeling, either from the A. C. F., the trade, or from the police. I would, therefore, in friendship advise them to remember once they are in the enemy's country to be very careful not to fall into the hands of the cruel gendarmes nor of the rural gardes-champetres, who, they may rest assured, will be in ambush for them. Let them make doubly sure that their "papers" are en regle: let there be no racing, especially through villages, and may they halt at the first intimation of anyone, in uniform or not. Otherwise they will make the acquaintance of the "contravention au vol," or, in other words, have their numbers taken, to be followed later on by arrest and fine.

Many villages in Normandy, about here, have speed-limits of from 8 to 10 kilometres (5 to 6 miles) per hour. Here is where the wicked invaders are going to come to grief unless they are careful.

I do not wish to frighten any timid invader by speaking of Spanish roads, customs, and regulations. By the time they have got across France they will be sufficiently chastened and subdued to submit to anything!

I hope to be on hand at Havre when the invasion arrives. The city will not be illuminated, nor will there be fireworks, but we'll be there just the same!

This time next year there will be a lot of Americans who will know more about Europe than they do now!

As to whether the invasion will result in establishing a trade in American cars, remains to be seen. The French manufacturer already fears the coming of American competition. He is hoping that the poor performance of the American cars will react in his favor. At all events he has decided to ignore the invasion and to kill its evil effects by a "conspiration de silence," in which he is being aided by the French press, automobile and otherwise.

Let us hope that he will be disappointed and that we soon may see the Avenue de la Grande-Armée lined with American auto shops filled with the marvelous runabouts of our dreams.

Vernon (Eure), France. PEDALS.

A TANGIBLE OFFER OF HELP FROM KANSAS.

Editor THE AUTOMOBILE:

[702.]—In regard to a communication on page 515, of your issue of March 21, wherein a party from Baltimore, Md., signing himself, Subscriber, complains about carbon forming on the cylinder heads and pistons of an automobile motor, and asking for a preventive therefor, wish to say that while we do not know of any method of preventing this carbon from accumulating, we have found a very simple method of removing it from our own engine, and if his engine has the spark-plug in the center of the cylinder head, he can remove the carbon with a simple tool made for the purpose, in not to exceed ten minutes' time.

If the party has an engine with the spark-plug in the center of the cylinder head, we would be only too glad to send him instructions for making a tool to remove this carbon, or would loan him ours for trial use, in case he would pay the charges back and forth on the same, which would not exceed 25 or 30 cents by mail.

The writer never saw such a tool advertised, and does not think that there is one in existence, except the one he had made.

If all manufacturers of automobiles would make an opening in the center of the head of the cylinder of the dimensions and thread of a spark-plug, whether they used it for inserting the spark-plug or not, the matter of removing the carbon from the piston head would be reduced to such a trifling matter, and yet of such vital importance to the owner, the extra expense and trouble for so making the cylinder would more than be compensated for many times over. J. M. PADGETT.

Topeka, Kan.

ANOTHER EXPLANATION OF THE MYSTERY.

Editor THE AUTOMOBILE:

[703.]—In answer to letter No. 636, in the issue of March 14, I would say that I have experimented to quite an extent with acetylene gas and generators, and find that acetylene gas leaves an explosive deposit on brass, copper, and silver, which will explode under very slight friction. This deposit seems to be greatly increased if the generators are overworked and the hot, freshly generated gas comes in contact with any of these metals.

This certainly was the cause of the explosions which occurred while Mr. Burtiss was bending the copper tubes.

The writer was quite badly burned at one time, five or six years ago, while removing a copper spray pipe from a large generator, the deposit igniting causing the gas to explode, and has since often wondered why generator manufacturers use so much brass and copper under such circumstances.

I would, also, like to ask you how much loss of power there would be in compressing air in a receiver and using it in a simple engine such as is used for steam. F. R. COVERT.

Hovington, Kan.

AMERICAN MAKERS AND THE EUROPEAN MARKET

R. E. MANSFIELD, U. S. consul at Lucerne, Switzerland, finds that the completion of plans for an American automobile tour through Europe this coming Summer has aroused unusual interest among European manufacturers and dealers in automobiles, concerning which he writes:

"Periodicals devoted to the automobile trade are sounding serious notes of alarm concerning what they are pleased to designate as 'the American automobile invasion.' It is not the tour alone that is causing the protest, but what is regarded as the 'presumption' of American manufacturers, who announce their intention of entering into competition with continental cars in the foreign field. There is a present and constantly increasing demand on the Continent for light and inexpensive motors, a type of car common to the American trade, but one that has up to the present been little exploited in Europe.

"In the construction of big, powerful, and expensive cars France has always maintained the supremacy; but the increasing and almost universal interest in automobiling, especially in Europe, where good roads invite all classes to indulge in the pleasures of motoring, has created a demand for lighter and less expensive machines. This demand is practically ignored by the European, and especially the French manufacturers, and people who are anxious to enter the arena of the automobile world, to enjoy the delights of motoring at a nominal expense, are looking to America to supply the demand.

"The American manufacturers have arrived at a period when, by standardizing, they are in a position to turn out a machine better calculated to meet the requirements of the motorist, who uses a car for ordinary touring purposes and is content to travel at an ordinary speed, than are any of the European manufacturers, and at a lower price. If good, reliable, serviceable cars of from 12 to 16 horsepower, with touring body, hood, lamps, and tools, complete, can be placed on the European market at a cost of, say, from $1,200 to $1,800, according to style and finish, they will prove popular. It is a significant fact, and one that argues well for the American automobile, that many of the European factories, and especially the most modern plants, are equipped with American machinery and tools for the construction of motors.

"The prejudice against American automobiles which exists generally throughout Europe has been created and is maintained largely by the continental manufacturers. This prejudice, which will continue as a factor in the trade for some time, can only be overcome or eliminated by a combined and systematic effort on the part of American manufacturers. It would not, perhaps, prove profitable for a firm representing one make of machines to establish agencies at various central points throughout Europe, but a general automobile agency representing several American manufactories could establish branches on the continent, where various types of machines could be kept on exhibition and where repairs and supplies for the motors might be kept in stock.

"Provision for promptly supplying repairs and replacing parts for damaged or broken machines is an important factor in considering the automobile trade in Europe. In the event of accident or damage to an American car, if there is no place where the repairs can be promptly supplied, the result is much delay, annoyance, and expense to the owner, which serves to strengthen the claim of the local dealers and manufacturers that it is advisable to purchase a motor manufactured on the continent, where repairs can always be promptly secured. For this reason continental agencies for American machines and supplies should enter into the calculation in the plan to invade the European market for automobiles.

Swiss Automobiles—Zurich Exhibition.

"There are in Switzerland many manufactories engaged in the production of automobiles, but there are no statistics available giving the number or value of motors produced annually in the country. The majority of the Swiss cars are high grade and also high priced. They are constructed especially with the view to ascending steep grades, as the country generally is hilly and mountainous. The automobile industry in Switzerland, while comparatively new, is making rapid progress, several new manufactories having been established within the last year or two. Among other machines produced in the country are various types of motor 'buses and wagons for transporting freight.

"The manufacturers of automobiles in Switzerland will give an exhibit in Zurich about the middle of May, which will be limited to cars made in the country. A list of automobile manufacturers and agencies in Switzerland is forwarded for the information of those who may be interested." [Copy of list may be obtained from the Bureau of Manufacturers.]

TAXIMETERS RENTED TO BERLIN CAB COMPANIES

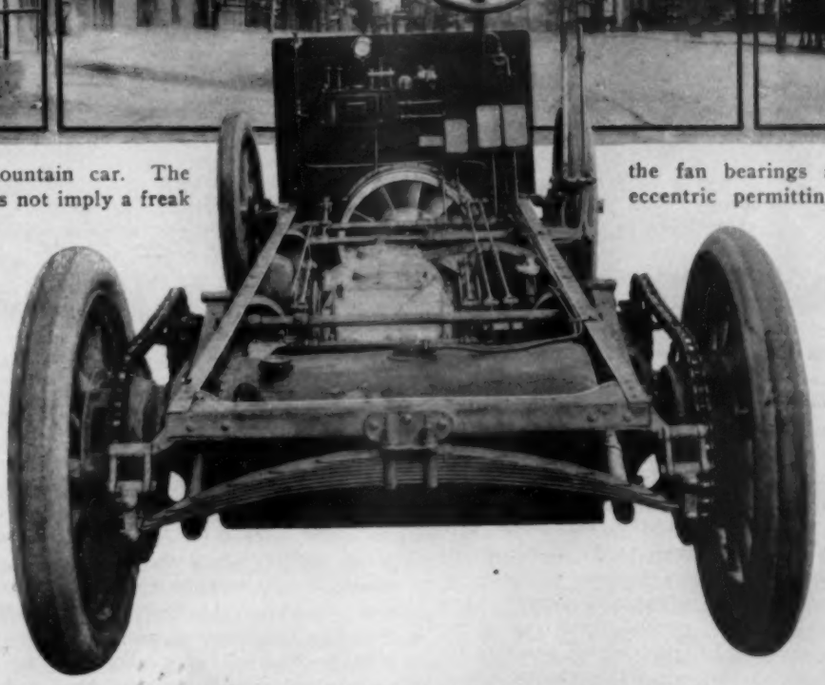
CONSUL-GENERAL A. W. THACKARA, in answer to a Chicago inquiry, reports as follows on the use of taximeters on public carriages in Berlin and other German cities:

"With the exception of one firm, the manufacturers of taximeters do not sell the machine outright in Germany, but rent them to the cab companies or to the individual cab drivers. The rental is 5 marks ($1.19) per month for horse cabs and 7 1-2 marks ($1.78) for automobile cabs. For these rates the manufacturers deliver the taximeters to the cab owners and guarantee to the city authorities the perfect operation of the machines. The taximeters are given to the cab owners sealed, and neither the cab owner nor the driver is allowed to open the machine, such an action being punished by the authorities as a criminal offense. When the machines require repairs they must be returned to the manufacturers or their agents, who break the seals, make the repairs free of charge, and deliver the taximeters again sealed to the cab owner. To save time the taximeters requiring repairs are left with the manufacturer or agent, who immediately replaces them with machines which are in good condition.

"The renting system is considered in Berlin as the most satisfactory for all the parties interested. The city authorities are insured against the possibility of the machines being tampered with by the drivers or owners of the cabs, the public is insured against overcharge, and the honest cab owners feel that they have nothing to do with repairs or care of the machine. Naturally the dishonest cab drivers prefer to own their own taximeters. When sold outright the prices for taximeters range from 200 to 400 marks ($47.60 to $95.20), depending on the number of schedules or combinations required."

June 1 to 17 has been settled upon for St. Petersburg's first auto show, to be well attended by the majority of the leading French firms. Italy, Belgium, and Germany, too, do not intend to be out of the running.

MARTINI is a mountain car. The designation does not imply a freak machine built for impossible grades, for, as every student of European automobiles is aware, Martini is an automobile built on correct lines by the most skilled mechanical ability of Europe. Everywhere, however, is evidence of the hilly district in which it has its origin. Nothing is more calculated to develop good points in an automobile than a mountainous region, and it is these points which the Martini has inherited from its native Switzerland. In New York the machine is now handled exclusively by Palmer & Christie, of 239 West Fiftieth street, who are sole agents for the United States and Canada.



In this country the fifty-horsepower model is being sold in preference to the two smaller types constructed by the firm. With a wheelbase of 124 inches this gives room for comfortable side entrance open or closed bodies. The chassis is of pressed steel, narrowed in front to give easier turning and has pressed steel sub-frames, on which are mounted engine and transmission gear. Springs are long semi-elliptic both in front and behind with a transverse spring in the rear. This gives such an easy suspension that shock absorbers are unnecessary.

Engine. Cylinders, which are cast in pairs, are 4.9 inches bore by 5.9 inches stroke. The engine runs at 1,200 revolutions, is capable of being throttled down to 60 revolutions a minute and develop normally fifty horsepower. Valves are on opposite sides, mechanically operated, and all interchangeable. Timing gears are completely inclosed, run in oil and being fibre against bronze are very silent. Large inspection plates are provided in the crankcase, and the lower half of the crank chamber is readily dismountable without disturbing the crankshaft.

Ignition. A low-tension Simms-Bosch magneto driven off the inlet valve gear supplies the current for the make and brake ignition. Each cylinder is provided with a cut-out for verifying the individual units.

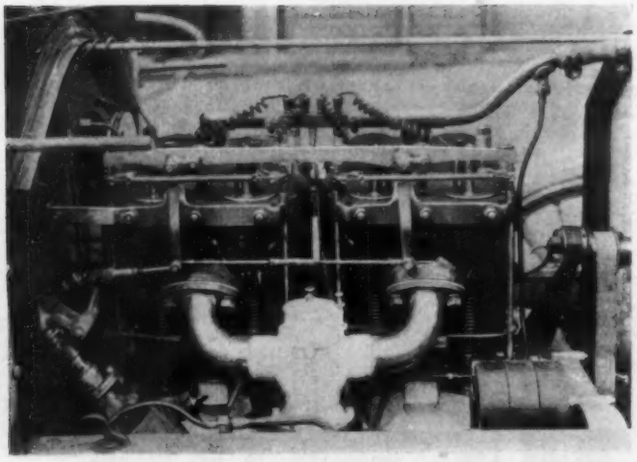
Water circulation is assured by centrifugal pump driven off the exhaust valve gear. The radiator is of the honeycomb type with a fan behind it driven by a belt off the main shaft; the fan bearings are mounted on an eccentric permitting the regulation of the tension of the belt. The flywheel is also fitted with a fan. A cooling system capable of the hardest mountain work is one of the features of the Martini construction.

The carbureter is conveniently located on the right hand side of the engine, with induction pipes leading directly up from the mixing chamber to the two sets of cylinders. It is fitted with an automatic air regulator, has a gauge screen to air inlet and is heated by a hot water jacket. By means of a small lever on the dashboard the supply of gasoline can be cut off between the float chamber and the mixing chamber, allowing pure air to be drawn into the cylinders and the motor used as a brake. The gasoline tank, carried at the extreme rear of chassis, is under pressure and is provided with a gauge indicating the exact amount of fuel. The gasoline is filtered before reaching the carbureter.

Clutch and Transmission. In the latest Martini model the clutch is of the leather-faced cone type, with a layer of rubber under the leather to give a more progressive hold. Transmission is through a countershaft, with drive to rear wheels through heavy side chains. The gear box is mounted on a sub-frame and provides four forward speeds and reverse, with direct drive on the high gear, all operated by a single lever with locking-gate device. The usual cardan joint is provided in the main shaft from engine to gear box. Ball bearings are employed throughout in the transmission gear, but are not used in the engine.

Brakes. The braking system of the Martini is the nearest approach to perfection it is possible to obtain. In addition to the arrangement already mentioned, by which the motor can be used as a brake, there are two powerful double-acting band brakes on the countershaft operated by separate foot pedals, and internal expanding brakes on rear wheel drums operated by a side lever. All brakes are steel on iron, and the pedal operated brakes are water cooled. If desired, the side lever for the rear brakes can be made to declutch the engine before applying braking power.

Lubrication is well thought out on the Martini. An automatic injection of oil to the four cylinders simultaneously



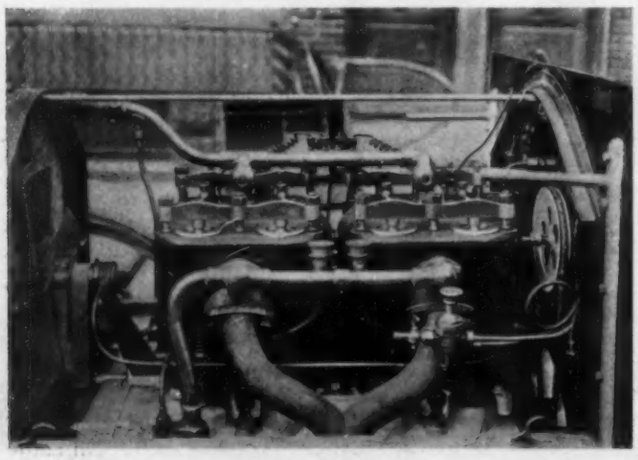
DETAILS OF THE INTAKE SIDE OF MARTINI ENGINE.

is provided by a lubricator on the Dubrulle system driven by belt from the exhaust camshaft, with special leads to main bearing, pump bearing and fan. A supplementary hand injector pump is fitted to the Dubrulle to provide for the motor being supplied with an extra quantity of oil on heavy gradients. There is also a separate compartment in the lubricator for kerosene with a hand pump to force same through the cylinders for cleaning purposes. An arrangement is provided to keep the oil at a proper consistency under varying conditions of temperature.

Control. Spark and throttle levers on the steering wheel give complete engine control; in addition the clutch pedal automatically throttles down the engine as the clutch is withdrawn. There are four foot pedals; decelerator, clutch, and two separate pedals for the independent brakes on the countershaft. On the dashboard are carried the pressure feed gasoline pump, lubricator, lever for shutting off gasoline supply to allow motor to aspire pure air, water-cooling control for brakes, and switch. The steering gear is of the irreversible type, considerably strengthened on the new model, with connecting bar behind the front axle.

A complete dust pan from the front of the engine to the rear of the gear box protects the motor and all menchanical parts from projections from the road. Inspection holes are provided in the pan at convenient positions. The muffler is carried transversely between the gear box and the gasoline tank, with exhaust pipes projecting at the rear at each side of the tank.

Body work is in all cases supplied independently and according to the taste of purchasers.



EXHAUST SIDE OF 50-HORSEPOWER MARTINI MOTOR.

NO LAW FOR THE KING'S AUTO.

By PHARE.

Paris, March 28.—The King's auto! What a degree of importance attaches to this designation. The Royal Motor Car! What an amount of privilege and prerogative is wrapped up in this titular term. Ordinary automobiles may fill the street and puff their petrol fumes into the nostrils of the entire population without securing any attention at all, aside from the instinct of self-preservation, but when the Royal or Imperial auto comes into sight it becomes what is known in journalistic eloquence as the "cynosure of all eyes" and looms up, by comparison, like a brand new buggy at the Ebenezer fair. The King's auto has more rights and privileges than a fire engine. It can do no wrong. If the Royal auto damages property or kills kids, the damagee or victim is royally honored, the amount of royal smashup or agony depending upon the altitude of the Royal Highness in question. To be run over by the regal limousine of a First Class Power is a high distinction, but to have your breast bone caved in under the touring car of a cheap republic or protectorate is only a vulgar street accident.

The carrosserie of the Royal auto corresponds to the body-work of the ordinary motor car, the difference being only in the name. The carrosserie of the Royal auto bears the crest of His Royal Highness. The Royal auto looks like any good-looking motor car until you come near and observe that it is labeled with a crest and no street address, instead of the name of Hank Hancock, with the street designation of 22 rue Skiddoo.

One of the European Royal Highnesses recently visited Paris—a frequent occurrence, moreover—and his chauffeur, while driving about the streets, was halted by the police and severely interrogated regarding his papers, of which he had none, and also with reference to his driving on the wrong side of the street. He couldn't speak the language, so he was marched off to the police station, where the usual explanations were given. By means of an interpreter it was soon ascertained that the prisoner was the King's chauffeur, the Royal driver, the pilot of His Majesty. Consternation among the police authorities! Humiliation for the policeman who made the arrest! Apologies and excuses! A terrible error had been made. The Royal chauffeur was at once allowed to proceed, and, as for his papers, permit to circulate, or privilege to drive on the right or wrong side of the avenue, all laws were off. As a matter of record, no experience of this kind happened to the chauffeur of the Royal Highness who recently visited Paris, but the fiction of it made an appropriate paragraph for one of the daily papers, showing how important are all things connected with the Royal auto.

THE POLICE AND THE MOTOR OMNIBUS.

Much has been written recently on the subject of the self-propelled omnibus, its advantages, disadvantages, and how it should be operated, says *The Engineer*. London has now over 850 of these vehicles on the road, and it must be admitted by the most biased critic that there has of late been a marked improvement in their working. The smoky exhaust which a few months ago was all-pervading has now ceased to exist to any considerable extent, while the noise of grinding gears and rattling bonnets has been greatly modified. Although the motor omnibus engineer has to be congratulated on these improvements, which came none too soon, Londoners have to thank the Chief Commissioner of the Metropolitan Police for the firm stand which was taken by Great Scotland Yard in refusing to license defective omnibuses. We are well aware that this severe discipline was not effected without hardships to many motor vehicle builders, but it was admitted by the representative of, perhaps, the largest firm of motor vehicle builders on Monday night, in the course of the discussion on Mr. Worby Beaumont's paper before the Society of Motor Omnibus Engineers, that the industry owed a great deal to Sir Edward Henry for the stand he had taken in the matter. Any other would have resulted in filling London's streets with an assortment of broken-down machines that would have worked irreparable injury.

S&M Simplex Surrey 50 H.P.

AS a summer touring car, or runabout, the new Smith & Mabley Simplex Surrey has much to commend it. This type has all the advantages of a two-seated runabout, and with its 40-horsepower engine is capable of a fast clip, without the disadvantage of very limited seating capacity which may be objected against the former. As will be seen from the illustration, the surrey model is of graceful appearance and has all the lines of a fast roadster for either two or four people.

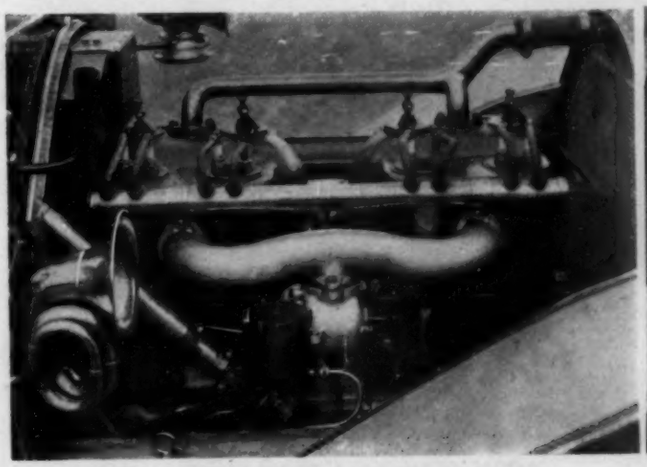
Examining the mechanical features of the machine, we find much that is of interest, the construction throughout being of the highest quality and very best finish. A pressed steel frame of usual channel section narrowed in front to give convenient steering is mounted on 53-inch by 2½-inch and 36-inch by 2-inch semi-elliptic springs, having respectively 10 and 7 leaves. Wheel base is 124 inches and track 56 inches. Tires are 935 mm. by 135 mm. and 915 mm. by 105 mm.

The four-cylinder engine, with cylinders cast in pairs, cylinder dimensions 5¾ inches bore by 5¾ inches stroke, is carried forward under the well-known S. & M. type of bonnet. Valves are on opposite sides and are all interchangeable. The engine is water cooled, circulation being assured by a gear-driven centrifugal pump, and the radiator being of the honeycomb type. A current of air is assured by a fan in the flywheel, the dimensions of which are 20 inches by 6 inches.

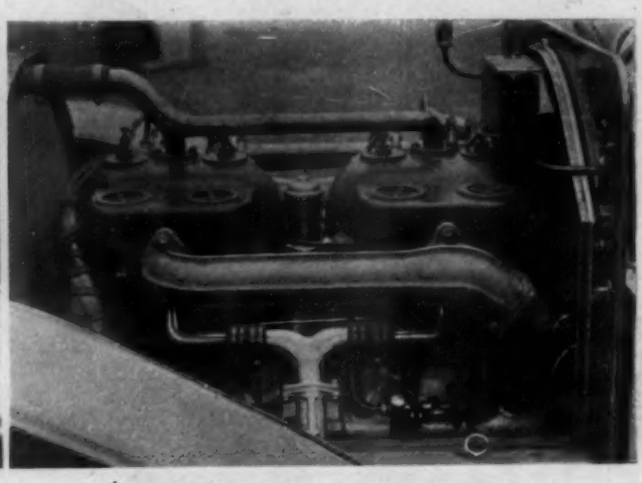
There is a double ignition system by Bosch high-tension magneto with automatic advance, and by storage battery and high-tension distributer. The two systems are quite distinct, being provided with two sets of plugs and two-way switches on dashboard. An automatic carbureter renders the motor exceedingly supple and makes possible a wide range of speeds. Mechanical lubricator is employed.

The clutch is of the multiple disc type, now so popular on high-grade machines, the advantage of which is that there is practically no wear and that the load can be taken up more progressively than with any other type. Two speeds and reverse are provided by sliding gear of the selective type, operated by one hand lever on the side of the car. All gears are of chrome nickel steel cut on special gear shapers to produce a perfect line of contact. Final drive is by side chains from sprockets on the counter shaft to the rear wheels. The number of teeth on the countershaft sprockets is 23, 25 or 27; those on the rear wheel sprockets are 44. Diamond chrome nickel steel chains are 1¼ by ⅝ by ⅝ inches. Direct drive is obtained on the high gear. Ball bearings are employed throughout in the transmission.

The braking system is very complete. On the rear wheels are two emergency brakes, 14 inches by 2 inches, of the internal expanding type, operated by lever on the side of car. Two pedal brakes on the differential, 11 inches by 3 inches, are operated by a foot pedal. The differential brakes are equalized and so arranged that in case one should get out of order the other can still be used. All brakes are absolutely protected from oil and are so constructed that no deformation can take place through heating.



INLET SIDE OF 50-HORSEPOWER SIMPLEX MOTOR.



EXHAUST SIDE OF SIMPLEX POWER PLANT.

MODEL H, 4-CYLINDER, 50-H.P. NATIONAL RUNABOUT.

THE motors used in Model H runabouts, touring cars and limousines of the National Motor Vehicle Company, are of the four-cycle four-cylinder type with separately cast, vertical, water-cooled cylinders 4 7-8 by 5 inches bore and stroke, developing 50 horsepower. The cylinders are mounted on an aluminum crankcase attached to a pressed steel sub-frame. Nickel steel admission and exhaust valves, all interchangeable, are mechanically operated by separate ball bearing camshafts, with valve levers adjustable to wear. The crankshaft is a steel bar hammered and bent into shape, revolving in five large imported D. W. F. annular ball bearings and has a ball thrust bearing at its forward end. The drop forged connecting rods are fitted with Parson's white bronze adjustable bearings, each bearing being held by four studs readily accessible through two large inspection ports on the side of the crankcase. There are four compression rings on each piston and exceptionally large hardened hollow wrist pins are employed. To dispense with keyways, the flywheel is bolted to a flange on the crankshaft.

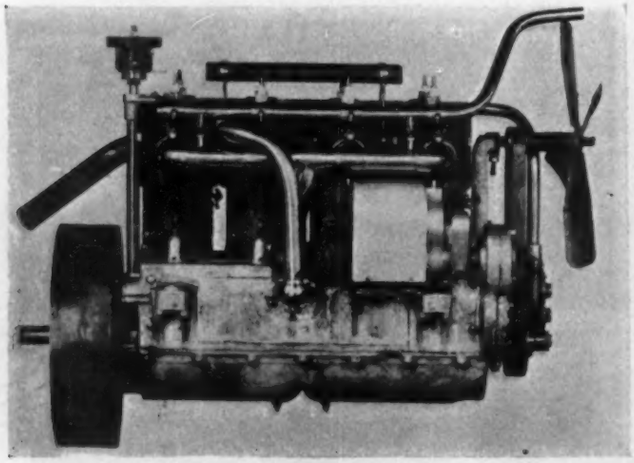
Six and one-half gallons of water are carried in the water system and flat tube radiator, circulated by a gear-driven pump direct connected to the camshaft. A large ball bearing fan, mounted on the engine base behind the radiator, draws a powerful current of air through its entire area.

The aluminum leather-face cone clutch is fitted with eight flat springs placed under the leather in recesses cut in its face. These permit the starting of the car gradually and eliminate sudden strain on the driving mechanism. Transmission is of the selective sliding gear type with three speeds forward and one reverse, giving direct drive on the high speed. Large annular non-adjustable ball bearings are employed on the main and counter shafts; the rear bearings on the main shaft are self-contained in a tubular cylinder and the whole inclosed in an oil-tight aluminum case.

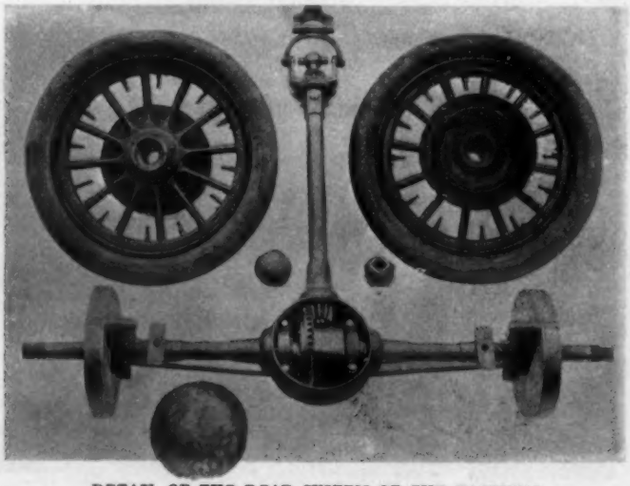
An enclosed, sliding universal joint connects the main transmission shaft and the driving shaft, transmitting power from the motor to the rear axle in nearly a horizontal line. The driving or propeller shaft is inclosed in an extra heavy seamless tube brazed into the spherical gearcase and revolves on two rows of large annular type ball bearings. An excellent feature of the National Model H is the provision made for examining the driving gear and differential.

There are four powerful internal expanding double-acting hub brakes engaging 11 and 15-inch drums cast integral with the hubs of the rear wheels. Two of these are operated by a hand lever and the two others are applied by means of a foot pedal.

Double ignition is employed, with separate sets of spark plugs, one consisting of a gear-driven magneto with its high-tension coil, the other of a storage battery with single vibratory coil and distributor. A third combination can be made by switching the battery current through the distributor of the magneto.



FOUR-CYLINDER, 50-HORSEPOWER NATIONAL MOTOR.



DETAIL OF THE REAR SYSTEM OF THE NATIONAL.

THE JOYS OF THE TESTING RUN.

By AN OCCASIONAL OFFENDER.

Ever experience the joys—and other sensations—of a mid-Winter or early Spring cross-country testing run? If not, you still have much to learn—and it is all practical—regarding autoing. Possibly you are a seasoned driver, on whom, through excessive indulgence, the sport has begun to pall. Perhaps the novelty of guiding a swiftly speeding car has not yet given way to that matter-of-fact state of mind that comes with the passing of time. You may even qualify in the amateur class. It matters little, for, whatever your standing as an automobilist, a century run through a rural district at this time of the year will bring you face to face with conditions hitherto unknown, and your fund of knowledge will be appreciably augmented.

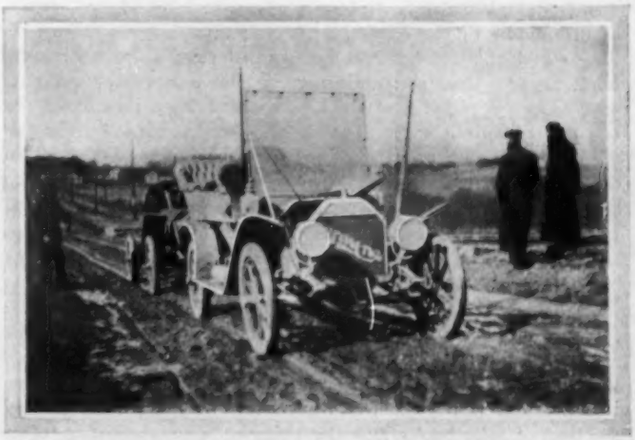
The requirements are not many—at the outset. The standard formula, epitomized, would read something like this: One country road, one bright day, one testing car, one good mechanician (if you are an amateur it is well to dignify him with the title of driver, permitting him to officiate in that capacity), heavy overcoat, boots and other paraphernalia sufficient to protect you from the pranks of the weather man.

Care should be taken to select, if possible, a machine fresh from the testing room, sans fenders, mudguards and body, aside

WHEN THE AUTOS COME TO TOWN BY TWOS.

from the none-too-secure seat upon which the driver and one other daring mortal may find a precarious resting place. The advantages of such a course become apparent before many miles have been traversed, if you are desirous of taking the seasoning treatment in allopathic doses. The acrobatic stunts performed in what at times bids fair to prove a vain endeavor to maintain your seat as you jolt along over the rough roads at a lively clip, the unobstructed sweep of the wintry wind, the stinging blows delivered the exposed portions of your face as in the teeth of a gale the machine splashes through water half way to the hub, burying you beneath a coating of mud until all resemblance to anything human has disappeared—these are some of the things that cause you to speculate on whether it is really worth while. You jolt about, discovering anatomical points of contact of whose existence you were hitherto unaware; the seat comes up to meet you in your downward plunge with startling regularity, you splutter and say unkind things as a sheet of muddy water envelops you—and then, almost unconsciously, you find yourself entering into the spirit of the occasion, and the earlier discomforts give way to a feeling of exhilaration and a sense of satisfaction at the way in which obstacles are overcome.

And there are compensations in plenty for any inconveniences encountered. It is worth many times the effort involved to observe the manner in which seemingly impassable stretches of road are left behind. There is a cheerfulness about the hum of the



LOOKING BACKWARD OVER THE FROZEN ROUTE.

motor as it settles down to the task of plowing a path through a sea of mud that is contagious. One instant you marvel at the strength displayed, and the next accept the accomplishment as a matter of course, looking forward with all the eagerness of a trained warrior to new fields of conquest. Hills that from a distance seemed to present an effective barrier become commonplace. You note the ease with which the car winds its way through ruts and wish they were deeper so you could test the full power of the machine, forgetting that it is doing more than could reasonably be expected.

In the distance appears a farmer, driving a spirited team. There is an exchange of signals, the machine is stopped and you pick your way carefully along the roadside, take a firm grip on the bridles and assist the anxious ruralite in guiding his fractious steeds by the new terror. Another dash down the highway, past farm houses where snarling dogs dash forth madly and vainly pursue you, barking wildly at the exhaust, dodging frightened poultry scurrying for safety, startling the bovines resting peacefully in the barnyard. There is the wave of a hand at the tiller of the soil who suddenly emerges from the cavernous depths of the barn—for your farmer, be it understood, is at all times a sociable mortal; a fleeting glimpse of faces pressed against the windows of the farm house, for the passing of an automobile, particularly in mid-winter, is still an event, and you are once more amid solitude.

A mile down the road the "honk honk" of your horn arouses from their slumbers the occupants of a covered buggy, jogging along contentedly behind the family steed. A frantic waving of arms gives the wholly unnecessary warning not to attempt to pass, for the single track would make such a move on your part

A SLIGHT VARIATION FROM THE BEATEN PATH.

disastrous. Meanwhile Dobbin plods peacefully along, keeping in the middle of the course, while you throttle your motor, reduce speed and indulge in some pointed remarks regarding the outfit ahead. Ever and anon there comes a warning, and it is with a sigh of relief you see a cross road loom into view. At last the suspense is over. The faithful steed is turned aside, you open up the motor, preparing meantime to go to the assistance of the distressed female if necessary. A burst of speed, a pair of bulging eyes peer out from under the cover, old Dobbin leisurely turns his head and surveys you, not even deigning to prick up his ears, and you discover that the fright was all in the buggy instead of ahead of it.

Incidents multiply with astonishing rapidity. The stop at a country store for a supply of rope fillers masquerading under the name of Havanas, the halt for lunch at a wayside inn, where curious throngs surround the machine and give utterance to exclamations of wonderment and advance strange theories, putting the best of joke books into the same class as the patent office reports when it comes to provoking hilarity, all contribute to the full measure of enjoyment.

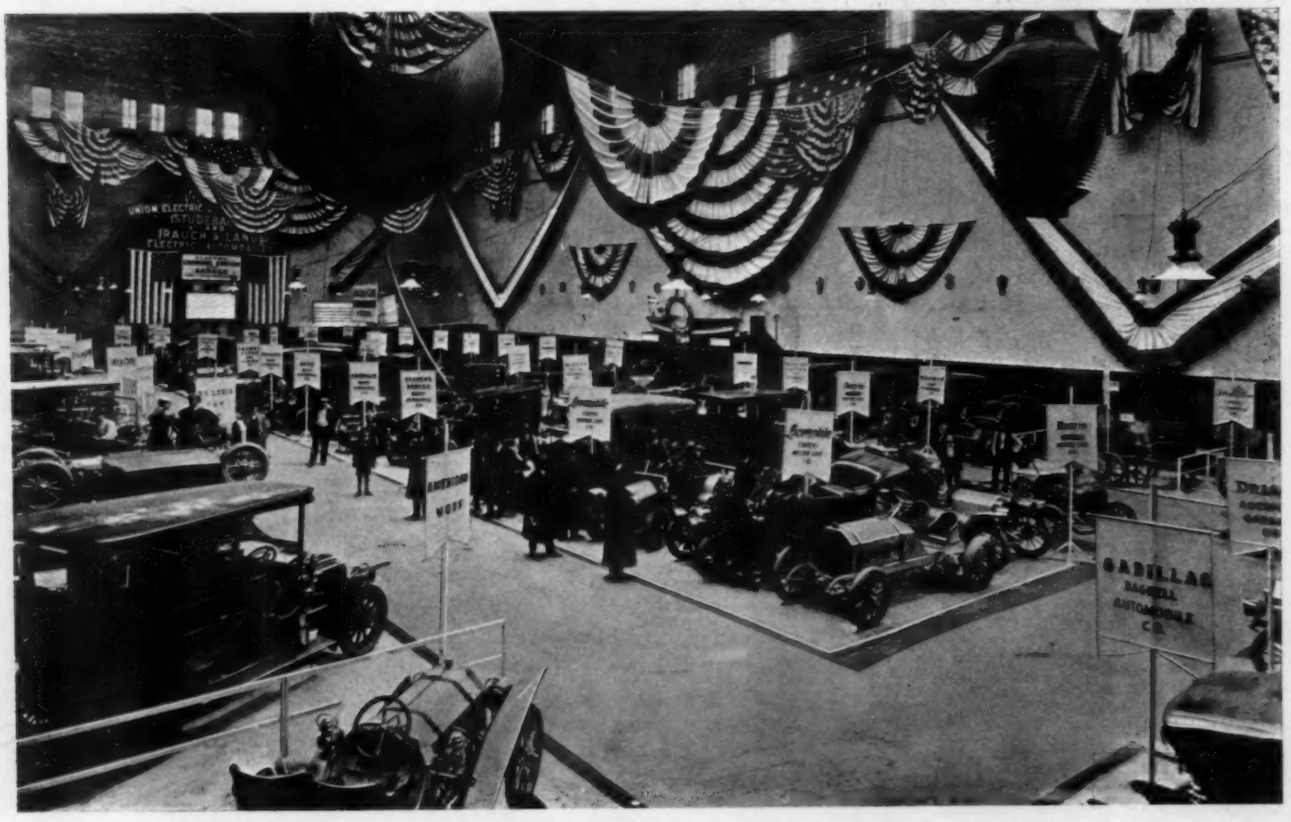
But it is only when, tired and stiff, creaking in every joint, plastered with mud until you are unrecognizable, possessed of a ravenous appetite, you alight from the machine, upon completing the trip, that there comes an appreciation of what the car has accomplished, and your previous estimation of automobiles is revised upward.

It is all in the game, this seasoning process. You may never be permitted to share its joys, its sorrows—for they are occasionally encountered. But unless it has been your good fortune to participate in one of these cross-country tryouts your autoing experience has not been fully rounded out, and marvel as you may at the satisfactory performance of your car, your knowledge of the stages through which it progressed before leaving the factory will be incomplete. You can only know it as it is, and though you may have some conception of the many processes involved in its make-up, the chief essential is lacking.

ST. LOUIS' FIRST SHOW PRECEDED BY PARADE.

St. Louis, April 8.—This city is entirely new to the business of holding automobile shows, and in order to call public attention to the first event of the kind which was held there last week it inaugurated the practise of preceding the show by an automobile parade somewhat after the manner of the circus. This was held under the auspices of the Automobile Club of St. Louis, and first, second and third prizes were awarded in each of three different classes—for machines having the best decorative scheme generally, the best floral decoration and the best comic decoration. The start was made shortly after noon on Monday last, and the route covered many of the most important streets of the city, disbanding at Forest Park.

The show opened a few hours later, and though it is the first effort of its kind in St. Louis both the city and the sponsors of the affair may well be proud of its success. The Jai-Alai Building offered about the only suitable housing for the affair, and its 20,000 square feet of floor space were taken advantage of to the best effect. Forty-four spaces were laid out on the main floor and were devoted entirely to complete cars. There was an overflow of cars in the annex, together with a liberal showing of motor cycles and motor boats. The balconies were turned over to the dealers and makers of accessories and parts, while that ubiquitous side-show—the moving picture exhibit—was also on deck. The main floor and annex mustered 29 exhibits of cars in all, with 14 accessory exhibitors, which, together with those of motorcycles and boats, brought the total up to 45. Contrary to long-established precedent, Monday was the opening day, although the show was in readiness and the doors could have been thrown open the Saturday night previous. The decorations were of an attractive order and well installed, the predominating motive being white, which was used as a floor covering, with flags and bunting to set it off, not to overlook the suspended balloon, for St. Louis wishes to assert her pre-eminence in the aeronautic field. The attendance was extremely satisfactory on the opening night.



INTERIOR OF THE HUGE JAI ALAI BUILDING, WHERE ST. LOUIS HELD ITS FIRST AUTO SHOW LAST WEEK.

THE SCIENTIFIC REGULATION OF TRAFFIC*

By EARL RUSSELL.

I AM fully aware that the scientific regulation of anything and the application of the principles of logic to legislation are naturally abhorrent to the mind of every Englishman. I am also fully aware that the recommendations and suggestions which I shall venture to make have no prospect whatever of being carried into operation in practice. Even so, I think it may be worth our while to consider for a short time what ideal regulations might fittingly be made to control the traffic of this country. The validity of one objection I fully admit, and that is that no paper schemes can carry any real weight until they have stood the test of experience. But some of the obvious faults of a scheme emanating from an individual may be removed by the full discussion and candid criticism which it will no doubt receive from many of the experts in this room. Let us then consider the ideal regulations that could be framed for traffic if we had the minute law-making and law-abiding character of the German coupled with the logical mind of the doctrinaire Frenchman.

Let me first then lay down certain postulates upon which to rear the logical superstructure. I do not wish to suggest that the postulates themselves might not be open to attack (in this age even Euclid is not sacred), but it is necessary to begin somewhere, and to take as our major premises some things on which we may be supposed to be agreed. I postulate therefore:—

1. That the primary object for which the money of the ratepayer is spent upon roads and streets is to provide channels for traffic.
2. That such traffic consists of vehicles of various classes, pedestrians and animals moving from one place to another place.
3. That it is an advantage to the community that such traffic should be conducted:
   - (a) With safety;
   - (b) With celerity;
   - (c) Without congestion or friction;
   - (d) With the minimum of expense or effort to the traffic itself, and with the minimum of burden to the rate-payers.

Next let us consider the classes into which this traffic may be divided for the purpose of this discussion, say, for example:—

A. Fast-moving traffic; including motor cars, motorcycles, bicycles, and gigs, hansoms and broughams fitted with rubber tires.

B. Moderately fast traffic; including tradesmen's carts, light delivery vans, railway parcel vans, post office vans, and all classes of omnibuses—generally, in fact, all vehicles which habitually move at speeds between seven and twelve miles an hour.

C. Slow traffic; such as carters' carts, heavy vans, farm carts, traction engines, and the like.

D. Pedestrians; including dogs walking to heel or attached by a leash and led horses.

E. Animals; including cows, sheep, pigs, dogs not under control, donkeys, and all domestic poultry, and horses running loose.

It is obvious that the problem differs greatly in complexity and difficulty in town and in the country, and it would be convenient to take the country first. I do not think it can be said that the by-roads of the country are so full of traffic that any special regulations are necessary. All that is required is that fast vehicles should be driven with care, and that no persons should come round sharp corners on the wrong side in a reckless manner. Let us, then, exclude all by-roads in the country from our consideration, and confine our attention to main roads. The first observation to be made about the main roads in this country is that they would be much better for a little engineering. In their present form, with unnecessary hills, unnecessary corners, bad material for the road surface, carelessness in camber and super-elevation, they are a standing disgrace to a civilized and wealthy country, and they entirely fail to fulfil the conditions required by Postulate 3 (*d*). The ratepayers pay a larger sum than is necessary for the upkeep of a properly-made road, and the users of the road have a more expensive and a more dangerous track than the configuration of the country requires. However, my purpose is rather to discuss the traffic itself than the roads upon which it runs; and the following are the regulations that I would suggest for traffic on main roads in the country:

1. Danger is caused by sharp corners; therefore, every such corner should be indicated by a sign, and every person or vehicle should keep to the proper side of the road at all times, and should not overtake another vehicle going the same way at corners. The corners themselves should be softened where possible, and hedges and other obstructions to the view should be removed.
2. Danger is caused by the unexpected emergencies of vehicles from a side road, and no vehicle should therefore be allowed to come from a side road on to a main road without coming to rest. Where two main roads cross, the speed should be reduced to ten miles an hour, or less in the case of horse-drawn vehicles.
3. The presence of animals not under control, or under imperfect control, upon the main roads is a danger, and no person should, therefore, be allowed to drive flocks of sheep or herds of cows upon a main road without the assistance of a second person at a distance to signal approaching vehicles and to assist in controlling the animals. Nor, as a general rule, should animals be allowed upon the main road at all between 9 A. M. and sunrise next day, except on the market day of the particular town. It would not, of course, be necessary to apply this prohibition to a single cow or single pig or single sheep, which was under adequate control by a rope or otherwise.
4. Pedestrians on main roads are dangerous both to themselves and to fast traffic, and where possible a raised footpath should be provided for their accommodation. In the absence of a footpath they should walk upon the side of the road facing the approaching traffic. Children playing or persons gossiping in the main road should be subject to heavy penalties for obstructing the traffic.
5. No person should be allowed to drive a vehicle on a main road without possessing a license, to be granted after examination in the regulations, and to be revocable for misconduct.
6. All vehicles traveling at night should be lighted both back and front.

By the adoption of regulations such as these fast motor cars could travel with safety to themselves and others on all the main roads of the country, and the average speed and comfort of all travelers upon the main roads could be sensibly increased, while I venture to say that the number of fatal accidents and personal injuries due to vehicles, whether motor or horse-drawn, would be decreased by something like three-fourths.

The alternative suggestion of motor tracks throughout the country has its fascinations both for motorists and their assailants. But with the precautions I suggest, it would be possible with safety on main roads of good surface to maintain an average speed ample for all requirements. Moreover, it is not good economics to incur expenditure—no matter who finds the money—which can be avoided by making a proper use of the plant you already have. From the tourist point of view a straight motor way, with no obstructions, would be very tedious, and only of real use to powerful cars going long distances in a hurry, or to passenger cars. For every thousand pounds per mile spent on the construction of the road, sixty-six cars per day, all the year round, at a toll of a penny per mile, would be required to pay interest and depreciation, not considering working expenses.

We now come to the much more difficult question of regulation in towns, and as we are all familiar with London, it will, perhaps, be convenient to take it as an example. The trouble from which traffic suffers in London is chiefly that of congestion, and this congestion is due to various causes. Sometimes, but comparatively rarely, it is due to the fact that a larger number of vehicles wish to proceed along the street in one direction than the street is physically able to accommodate. More often it is due to a string of vehicles being held back by some slow-moving vehicle in front, and being unable to pull out and overtake it on account either of the presence of central standards, or of a

*Paper read before the Royal Automobile Club of Great Britain and Ireland.

vehicle coming in the opposite direction. The dangers in London do not seem great, on account of the slow average speed of the traffic, except at night, when the streets are comparatively empty, and hansoms and other fast vehicles may often be seen dashing round right-angled corners on the wrong side. In spite, however, of the comparatively slow speed, there are very many numerous accidents, indeed, in London. The cost of the delay to traffic has often been roughly estimated by writers, but none put it at less than several million pounds in the course of each year. The making of new streets or the widening of existing streets is an enormously expensive process in any large town, and any scheme which doubles or trebles the existing capacity of the streets without any cost to the ratepayers *ought*, therefore, to receive enthusiastic support. What, then, is the remedy? In the first place, if the greater part of the confusion is caused by the mingling of traffic of all sizes and all speeds, let the traffic be separated into three classes, A, B, C. In the second place, let every wanton obstruction of the street space in the shape of refuges and cab ranks in the middle of the street be swept away, and, as a consequence of this, it will be necessary for the safety of the traffic itself to provide that it shall flow only in one direction, and for the safety of pedestrians it will be necessary to provide either bridges or tunnels. If traffic in any given street is to be only in one direction, it follows that some parallel route must be found to accommodate the traffic in the reverse direction. The danger from corners can be almost entirely abolished by causing all corners to be taken on the near side, and where this is not possible an inlaid white line should be put in the street surface which would have the effect of preventing a vehicle from cutting the corner. Imagine the pleasure of having no refuges and no traffic in the opposite direction to look out for, no danger in pulling to the off side to overtake another vehicle, no difficulty in keeping to the curb because of the vehicle already standing there. Picture also the diminution in accidents owing to nearly all corners being turned on the natural side, and the few exceptions being turned in such a manner as to make a collision almost impossible. Of course, a necessary incident of such a system would be that every driver should be licensed, and should pass an examination in the regulations applicable to London traffic. Having disarmed my critics by insisting so frequently upon the Utopian character of these proposals, I append for my own satisfaction a draft bill showing how easy it would be to give legislative effect to them, should the community ever decide to conduct its traffic on business principles.

AN ACT FOR THE REGULATION OF TRAFFIC IN THE UNITED KINGDOM.

PART I.—COUNTRY.

1. A person in charge of a vehicle upon a main road shall keep upon the left or near side of such main road and shall not at any time permit the off side of his vehicle to project more than two feet beyond an imaginary line drawn along the center of such main road except for the purpose of overtaking another vehicle going in the same direction.

Provided that he shall not overtake or attempt to overtake any other vehicle going in the same direction within fifty yards of any corner on such road which would prevent traffic approaching in the other direction from having a clear view.

2. Any person in charge of a vehicle on a main road who is overtaken as provided in the last section shall keep his left or near wheel within not less than one foot of the edge of the metaled portion of the road.

3. No person in charge of a vehicle shall come upon a main road from any other road without bringing his vehicle to rest at the junction with the main road.

4. No person shall suffer any animal which is not under the control of some person to be or remain upon any main road between the hours of 9 A. M. and sunrise on the next day.

Provided that this section shall not apply on market day within ten miles of a market town to animals being driven to or from market under the charge of some person with the assistance of a second person to warn approaching vehicles.

5. No person in charge of a vehicle on a main road shall cross another main road without reducing speed and taking such other precautions as may be necessary.

6. No person on foot shall walk upon the metaled portion of a main road at a greater distance than three feet from the right hand edge of the metaled portion. No person on foot shall be permitted to loiter or play games upon the metaled surface of any main road.

7. (1) A person shall not drive or conduct a vehicle on a main road unless he is licensed for the purpose under this section and a person shall not employ any person who is not so licensed to drive or conduct a vehicle.

(2) The provisions of Section 3 (2) (3) and (4) and of Section 4 of the Motor Car Act 1903 shall apply to the granting, endorsing and suspending of licenses and the disqualification of license holders so far as applicable as if the word vehicle were substituted for the word motor car.

(3) The authority granting the license shall examine the applicant in such way as they may think fit and may for this purpose appoint any person or committee as examiner or examiners and pay such fees as they may fix, not exceeding 5s. per candidate.

PART II.—TOWNS.

8. In boroughs exceeding in population 250,000 the Local Government Board may, on the application of the Town Council, declare the whole or a limited portion of the borough or certain specified streets in the borough to be a special area.

9. (1) In such special areas it shall be lawful for the Town Council to make such regulations for traffic to apply during the whole or any specified portion of the day providing inter alia:—

(a) For defining or limiting the classes of traffic to be allowed along particular streets;

(b) For traffic to be limited to flow in one direction only;

(c) For prohibiting the loading or unloading or stopping of vehicles in the street;

(d) For regulating the routes and stopping places of omnibuses and for providing standings for other public service vehicles.

(e) For marking the centers of streets and the angle at which corners may be turned by vehicles where necessary;

(f) For any detailed regulations ancillary to the above.

(2) Any regulations made under this section may be altered, amended or added to at any time.

(3) Regulations made under this section shall not come into force until one month's public notice has been given by posting in the streets to be affected and by publication in the newspapers circulating in the district.

(4) Regulations for driving traffic into five classes to be known as fast traffic, moderately fast traffic, slow traffic, pedestrians, and animals, shall be made by the Local Government Board. Any dispute or difference as to the class of traffic to which any particular kind of vehicle or animal belongs shall be settled by the Local Government Board, whose order shall be final.

(5) A copy of all regulations in force shall be given to every person who receives a license under Section 10.

10. A separate license, to be granted and obtained in the same manner and subject to the same provisions as enacted by Section 7, shall be necessary for any person in charge of a vehicle in a special area, and no person shall be entitled to drive or conduct a vehicle in a special area by virtue of a license granted under Section 7, but a license under this section shall be valid for any special area.

SPECIAL PROVISIONS APPLICABLE TO LONDON.

11. The area contained within a radius of four miles from Charing Cross shall be deemed to be a special area within the meaning of Section 8, and shall be called the Metropolitan Special Area.

12. The powers exercisable by a Town Council under Section 9 shall be exercised within the Metropolitan Special Area by the Commissioner of Police for the metropolis, with the advice and consent of the London County Council.

PART III.—GENERAL PROVISIONS.

13. No person shall be entitled to recover damages for loss or injury to any vehicle or animal if at the time of the happening of such loss or injury the vehicle or animal was suffered by the owner or person in charge to contravene any of the provisions of this act, or of any regulations made under this act. In any civil action proof of such contravention shall be sufficient to establish liability without further proof of negligence, and shall entitle any person who has suffered loss or injury owing to a contravention in respect of any vehicle or animal to recover damages as if negligence had been proved.

14. Any person failing to observe any of the provisions of this act or any regulation made under this act shall be guilty of an offense under this act, and shall be liable on summary conviction in respect to such offense to a fine not exceeding £50, or in the discretion of the court, to imprisonment not exceeding three months.

15. It shall be lawful for any local authority to incur expenditure in advertising or posting the provisions of this act or of any regulations made under this act.

16. (1) In this act the expression "vehicle" shall mean anything running on wheels other than perambulators and wheel-barrows.

(2) This act may be cited as the Traffic Regulation Act, 1907.

HELPFUL HINTS FOR THOSE TOURING ABROAD

By W. F. BRADLEY.

IF a tour through Europe involved no more formalities than a run to Chicago, automobilists would not hesitate long before deciding to cross the Atlantic. But the prospect of a voyage to France, Italy, Germany, and other countries of the Old World brings visions of customs officials, registration laws, duties, any of which slighted may entrain undesirable acquaintance with the merciless gendarme. In reality touring through the old country is no more difficult for an American than for a native, if only advantage is taken of the facilities offered by the various European associations and clubs for those who travel by automobile.

Nine-tenths of the Americans who make an automobile tour through Europe start from France. Some account, then, of how French associations aid automobilists will be of use to the greatest number. The Touring Club of France, the largest organization of its kind in the world, renders invaluable aid to the foreign visitor. By an understanding between the American Automobile Association and the T. C. F., any member of the former can become a member of the French body on simple request in writing and a payment of the annual fee of one dollar. One of the most valuable services the T. C. F. can offer is the entry of the machine into nearly all European countries without any formalities at the customs house.

To Obtain the Greatest T. C. F. Convenience.

Thus a member before leaving New York could arrange for his automobile to pass into almost every country in Europe merely on presentation of a paper known as a tryptique. To obtain this, particulars of the car must be furnished and the amount of custom duty levied by the countries about to be visited deposited with the club, which amount will be refunded by the club at the end of the tour. If the traveler knows what his plans are a couple of months in advance, he can arrange all this before leaving home and pass from one European country to another more easily than here from one State to another.

At the club's headquarters in the Avenue de la Grande Armée, Paris, maps and guide books dealing with every quarter of Europe in which the tourist has, or ought to wander, can be consulted and purchased. In addition there are always secretaries present to give advice on routes and aid in mapping out tours. There are quite a number of general advantages which the T. C. F. bestows on all who have the traveling habit, whether they pay their annual dollar or not, such as sign posts, improved roads, improved hotels, and generally improved conduct on the part of those who own the hotels.

Benefits Obtainable from the A. G. A.

If the automobilist intends starting his tour from Paris, and a very large number do, notwithstanding the evil reputation which the roads in the neighborhood of the capital have earned (which reputation, by the bye, is most frequently due to the mistakes of strangers in picking out old paved roads instead of the more indirect macadamized surfaces) he can obtain considerable benefit from membership in the Association Générale Automobile. This body is an offshoot of the Automobile Club of France, and has its offices in the same building.

One of the first and one of the most important matters on arriving in France is to obtain a driving license. Ordinarily this will involve a delay of two or three days, according to the idea the official has of the value of time or his inclination to work. The A. G. A. is empowered by the national authorities to hold examinations and grant temporary operating licenses, which can be exchanged at leisure for the official document. A stranger arriving would present himself at the Association headquarters with his car, a few unmounted photographs of himself, and the necessary documents to prove his identity. Immediately an examiner takes him in hand, and, if satisfied with his ability to handle an automobile, grants him a certificate which will be accepted by any sergent de ville or gendarme in France, or almost every other country of Europe for that matter. When the clerks in the Mining Department have gone through their leisurely routine the official papers will be forwarded to you, probably three weeks later, but so long as you have the A. G. A. license in your breast pocket you can look any man—or gendarme—in the face. The A. G. A. is also empowered to issue the tryptique to its members, as is done by the Touring Club of France.

How the A. G. A. Recommends and Supplies Chauffeurs.

Many an American has engaged a chauffeur in Paris—and regretted it. There are a special class of polyglots hanging around the garages of the gay city who find it easier to get an operating certificate than a good character recommendation. American millionaires are their best friends. If a member of the Association Générale Automobile, you can obtain a chauffeur whose ability has been proved and whose moral character is vouched for by that body. The A. G. A. keeps close watch over the men it recommends, causes them to report to headquarters whenever out of employment, and withdraws their diploma on any proved case of misdemeanor.

Further advantages of the association are information on tours, maps, etc., a discount on tires, spare parts, and automobile assurance, by arrangement with a number of firms. The annual subscription of the association is $4, reduced to $2 for members of the Automobile Club of France or affiliated bodies. In a conversation with the secretary of the association last year the writer was informed that any member of an American Automobile Association club would be accepted as a member of the A. G. A. on simple payment of fees.

Not Much Obtainable from A. C. F.

That august body, the Automobile Club of France, housed in a former abode of royalty, has less to offer the simple tourist than some of the more humble clubs. Its Touring Commission, however, has done and is doing useful work in the collection of information on tours, roads, foreign regulations, and custom duties. It is generally more concerned with improvements in general, improvements which benefit the mass of tourists, than in giving help to individuals. Recently, under the secretaryship of E. Andrieu, the work of the Touring Commission has been considerably extended and the publication of a weekly official journal on automobile matters has been undertaken.

The Motor Club of Belgium offers in its territory almost all the advantages given by the Touring Club of France. An understanding between the Belgium body and the A. A. A. gives reciprocal benefits between these two organizations.

NO CAUSE FOR ACTION, OWNER NOT IN CAR.

SEATTLE, WASH., April 8.—Owners of automobiles are not responsible for all acts of their chauffeurs, according to a decision handed down by Judge Griffin in the King County Superior Court. Suit was brought against James D. Hoge to recover $8,200. During the progress of the trial it was shown that the driver was out for his own pleasure when the plaintiff was struck by the machine. Judge Griffin immediately took the case out of the hands of the jury and ordered dismissal of the action. Seattle automobile owners have had considerable trouble because of acts of their drivers. Contrary to orders they have taken surreptitious trips with friends. Carelessness often prevails during such trips. Owners here are now putting a stop to this.

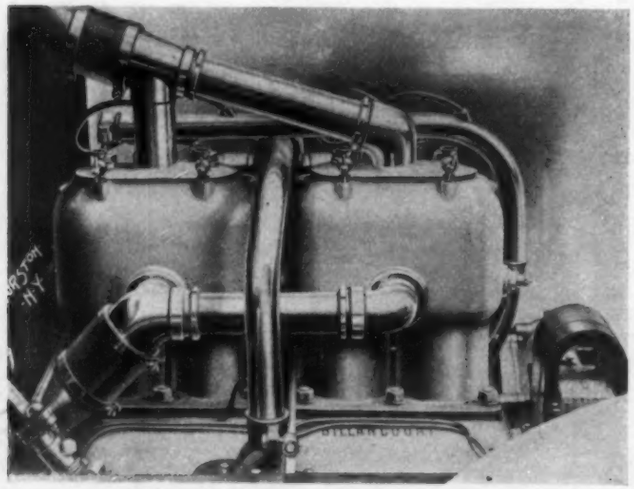
LE GAULOIS TIRE WAGON ON ITS DAILY ROUND.

TIRE FIRM PREFERS MOTOR VEHICLE.

As illustrative of how tires are delivered and repairs collected in Paris, the accompanying illustration will be noted with interest. The tires are Le Gaulois, manufactured by Bergougnan & Co., a firm which has made enormous progress in recent years, and now has a large establishment close to the Avenue de la Grande-Armée. The truck is a Lacoste & Batemann fitted with Bergougnan solid tires. The headlights are of American manufacture.

ACCESSIBILITY IS A RENAULT FEATURE.

One of the most admired engines at the last Paris automobile Salon was the new four-cylinder Renault, an illustration of which is given herewith. A feature which must be apparent even to those little acquainted with the detail of engine construction is the accessibility and neat arrangement of the Renault motor. With the radiator carried behind the engine against the dashboard the maximum of accessibility is obtained, and water circulation piping considerably simplified; this principle first adopted by Renault three years ago is now being followed by several prominent French builders. Valves are all on one side, and are mechanically operated. The magneto is carried in front of the motor and is driven by gears off the camshaft, all of which are completely enclosed in the crankcase. It will be noticed also that the carbureter is carried on the right-hand side of the engine with induction pipe leading up between the two sets of cylinders and passing to the opposite side, where the inlet ports are centrally located between the exhaust ports. Engine control is entirely by throttle.



A MUCH ADMIRED CLEAN-CUT FRENCH MOTOR.

HOW ONE CONCERN HAS UTILIZED AUTOS.

BOSTON, April 8.—Starting in 1902 with four steam runabouts, the Moxie Nerve Food Company now has a score of cars, mostly gasoline, for the use of its salesmen, and also employs several big trucks for freighting purposes and a number of cars for new cross country advertising and inspection trips. More cars will be added this year, and one of the Moxie autos will do some valuable work in placing road signs over many of the country roads of New England. These signs will be distributed by special men, who will cover the territory in a 40-horsepower Matheson with a light delivery body.

As to where the automobile service saves, F. E. Thompson, the man whose far-sighted enthusiasm for the automobile is principally responsible for the Moxie Company's successful experiments, said to THE AUTOMOBILE correspondent the other day: "The cost of using the autos amounts in a year to about what it would cost to keep the same number of horse-rigs in our territory. But the autos cover the ground twice where the horses would get over it once. Our salesmen formerly kept closer to the railroads than now, and after they began using the autos they reached a good many small villages and cross-roads stores that had never done much business with us before. In the heavy business the trucks do work which horses could not be expected to attempt, because they make such long runs.

LAST YEAR'S MOXIE PARADE THAT STARTLED NEW ENGLAND.

But the Boston truck, which makes runs of reasonable city length, does the work of two two-horse vans."

Mr. Thompson himself knows how to get a good deal of enjoyment, as well as profit, out of automobiles. He has Stanley, Knox, Locomobile, Rambler and Matheson cars for his own use, and has made numerous tours. Counting business and pleasure, he has covered probably 50,000 miles by automobile since he became addicted to that kind of locomotion. Last winter he shipped his car to Florida, toured around Jacksonville for a time, then reshipped to Ormond and had his car on the beach at racing time. His experience has made him a good judge of the road building in various sections of the country. He says Massachusetts has by all odds the best system of highways; New Jersey is next, and Connecticut he places third. Southern roads, as a rule, he denominates bad, on account of lack of care and surplus of red clay. The roads between Schenectady and Rochester, in New York, come in for some pretty earnest condemnation from Mr. Thompson's lips. He thinks a big State like New York ought to do better.

TRACTION BLOCKS MOTOR 'BUS FRANCHISE.

PHILADELPHIA, PA., April 8.—The city of "brotherly love" wants the motor 'bus and the Auto Traction Company has been organized to fill the want. As yet it lacks a franchice and a bill granting it is now pending before the city council—at least it was until the last meeting of that august body, when it was finally referred back to the Highways Committee. It is thought that the blocking of the bill is a practical acknowledgment on the part of the local transit company that the motor 'bus is not looked upon with favor in that quarter.

SPRINGTIME ACTIVITIES WITH THE CLUBS

Worcester Club to Re-elect President Coughlin.

WORCESTER, MASS., April 8.—The annual nomination of officers for the ensuing year have been made by the Worcester Automobile Club. The nominations, which will go through unopposed next month, are: President, John P. Coughlin; vice-president, Daniel F. Gay; treasurer, William N. Stark; secretary, Frederick E. Frost. President Coughlin and Mr. Gay were appointed to secure a man to be known as assistant secretary, who will make his headquarters at the club and in reality be secretary. Mr. Frost finds that he cannot devote to the constantly increasing membership of the club and to his business the attention that each deserves, so Robert M. Pratt, a newspaper man, will become assistant secretary. He is well known in auto circles.

Worcester's automobile club is representative in every sense of the word. The club has roomy and comfortable quarters in the heart of the city, and a constantly increasing membership that now totals over 400. The policy of the club has been changed from a distinctly garage club so that now its activities include numerous social features, when the wives and daughters of members are admitted to the privileges of the club. It is affiliated with the Massachusetts State Association of the A. A. A.

The disposition of the club to make a campaign as a whole of educating the residents of the rural districts to the automobile all brought members into the fold, and with an increased membership it was possible to secure the entire top floor of the Chase building. The club this summer will have a roof garden.

The Worcester Automobile Club was organized February 16, 1901, when less than a dozen automobilists gathered at the agency for the Locomobile here and perfected an organization. J. W. Bigelow was president; B. A. Robinson, treasurer, and H. E. Shiland, secretary. From this time on the meetings of the club were of the happy-go-lucky sort, there being but little interest in the club manifested. In September of the following year the club held an annual meeting. George B. Cutting was then elected president; Dr. R. M. Gardfied, vice-president; H. E. Shiland, treasurer, and John S. Harrington, secretary.

The club then voted that its annual meeting should be held thereafter in May, and on the third of that month, the following year, Asa Goddard was elected president. From his election the club began to wake up. It was Mr. Goddard who thought and planned the hill climb of 1905. Unaided, practically, he managed the climb on Dead Horse Hill, overcoming the opposition of the civic authorities of Worcester, and, what was harder, the authorities in Leicester, who have jurisdiction over the greater part of the hill course. Before the first hill climb, Mr. Goddard managed and carried out successfully the Memorial Day meet of Greendale track.

Until November, 1904, the club held its meetings at any convenient office or clubroom, but during the month Mr. Goddard made arrangements to have the club headquarters at the Bay State Hotel. It may not be amiss to relate a story told among the members, which shows just how Mr. Goddard made arrangements that turned out for the best interests of the club. He arranged with the hotel management for the club to pay a certain reduced price, it is said, for its quarters. Anticipating the business that would fall to the hotel from visiting automobilists and club members, Mr. Goddard arranged that the club was to receive a certain percentage on all sales made in its rooms. It's easy to guess the result. In a very short time the club was not only getting its headquarters rent free, but the hotel management was owing the club money at the end of the month. The story may be a little overdrawn by continued repetition among automobilists, but in the main it is true.

Besides the hill climb, which is now an annual affair, the club holds an Orphans' parade annually, as well as a gymkhana at the Grafton club.

Ontario Motor League Formed by Canadians.

TORONTO, ONT., April 8.—At the annual meeting of the Toronto Automobile Club a very important step was taken in the formation of what will be known as the Ontario Motor League. With the organization of this body the corporate existence of the Toronto Automobile Club ceases, the club being taken over by the Ontario Motor League, in which all motorists in the province of Ontario are eligible for membership, and with which other local clubs will be affiliated.

The following officers were elected: President, Noel Marshall; vice-president, T. A. Russell; secretary-treasurer, E. M. Wilcox; directors, William Dobie, R. J. Christie, M. C. Ellis, G. H. Gooderham, A. E. Chatterson, Dr. P. E. Doolittle, F. F. Miller, W. W. Doran and Lloyd Harris.

The principal object of the league is to promote a good roads movement throughout the province. Very tangible progress has already been made by the Toronto Automobile Club in offering a number of prizes aggregating $1,000 for the best improved mile of roadway within a certain period to the various municipalities in the County of York. The roads in this country are greatly in need of improvement. The county has been backward in the past in spending money on them. Ten entries have been made and very considerable interest is being taken in the competition by the competing municipalities. The Ontario Motor League has taken over the work in connection with this competition and is taking steps to co-operate with other bodies in spreading the good roads movement throughout the province.

The following committees have been elected:

Good Roads: William Dobie, chairman; F. F. Miller, E. J. Christie, Lloyd Harris, T. A. Russell, J. C. Eaton.

Membership: G. H. Gooderham, chairman; F. E. Mutton, W. W. Doran, A. E. Chatterson.

Legislation: M. C. Mills, chairman; T. A. Russell, G. H. Gooderham, Dr. P. E. Doolittle.

Publication: A. E. Chatterson, chairman; R. J. Christie, F. F. Miller, M. C. Ellis.

Rejuvenation of the Grand Rapids Club.

GRAND RAPIDS, MICH., April 8.—The Grand Rapids Automobile Club, at its recent meeting, elected thirteen new members, making the membership of the club now eighty-four. Considerable enthusiasm was aroused over club matters, especially a new clubhouse, and it looks as if the club, which has laid dormant for some time, intended to do something this summer. It is definitely settled that a clubhouse will be bought at Cascade, a delightful country place eight miles from the city, just a nice run for a dinner party on hot summer evenings.

Another matter which has been practically settled is the formation of a State Automobile Association for Michigan. The local club is in favor of it, and has appointed a committee to confer with the Detroit club at their next meeting, April 16. It is necessary, in order to have the association formed, for only three clubs to get together. If Detroit is not in favor of the proposition, it is believed that it will be an easy matter to get two other clubs, such as those at Muskegon and Kalamazoo, to join with the local club. So the association is practically assured.

J. R. Jackson, a Grand Rapids man, has just recently been appointed a member of the A. A. A. Touring Board.

Quaker City Club to Aid Members Unjustly Arrested.

PHILADELPHIA, April 8.—G. Douglas Bartlett, chairman of the law committee of the Quaker City Motor Club, has announced that his committee will defend, free of charge, all members of the club who think they have been unjustly dealt with by the police authorities of Philadelphia and adjoining counties in the matter of arrests and fines for alleged overspeeding or in mix-ups

over the tag question. This action was taken in view of the fact that many members, rather than suffer delays and incur additional expense for counsel fees, have been in the habit of meekly "ponying up" to the authorities, although convinced that they have been imposed upon. The ease with which some motorists "cough up," Mr. Bartlett claims, has a tendency to make the Vidocqs of the countryside all the more eager for easy money, with the result that what was at one time only an occasional nuisance is likely to develop into a constant menace to automobilists in general if something is not done to immediately check it. The bare announcement that such unjust arrests and finings will be fought to a finish will doubtless have the effect of making the village Sherlock Holmeses more circumspect.

Indiana Clubs Are Awakening.

INDIANAPOLIS, IND., April 8.—There are indications that a number of automobile clubs that were dormant last year will be rejuvenated this season. For some reason there was practically no interest in clubs through Indiana last year. On Saturday night a meeting was held at which plans were discussed for reviving the Indiana Automobile Club. At one time this was a prosperous organization with about 300 members. Later in the season an election of officers will be held. The president elected last year has not been located, as few of the members can recall who he was.

The Indiana Motor Club, which started an elaborate clubhouse at Broad Ripple last season, will endeavor to complete it this spring. Interest in the club will also be revived. Owners of Indianapolis and Terre Haute are planning to build a clubhouse midway between the two cities.

The interest in clubs at the present time is due largely to the fact that it is believed the A. A. A. tour will include Indianapolis in its schedule. An Indiana State body of the national organization seems to be assured.

Aero Club Entertains Wellman and Hersey.

NEW YORK, April 8.—Walter Wellman, the explorer who is planning to reach the North Pole with an airship, arrived in this country last week for a short visit. Wednesday night he was a guest of the Aero Club of America at its clubrooms, No. 12 East Forty-second street, and a fellow guest was Major Hersey, who with Frank Lahm won the Gordon Bennett balloon trophy for America. Mr. Wellman gave an extensive talk of a most sanguine sort in relation to his hope of traveling to the North Pole in his gigantic airship now being constructed in Paris. Major Hersey sailed Thursday morning last, in company with Dr. Fowler, another member of the expedition, and Mr. Wellman expects to return on the French line boat leaving this week. The party will leave Paris for Spitzbergen early in May, and the actual start for the Pole will be in the latter part of June.

Long Island A. C. Selects Route Across Brooklyn.

BROOKLYN, N. Y., April 8.—The Long Island Automobile Club has selected a direct route for automobilists driving from Brooklyn Bridge to Prospect Park. The telephone and telegraph companies have given permission for the use of their poles, and the signboards, two feet long by one foot wide, are now being placed by the Runs and Tours Committee, of which Alex Schwalbach is the chairman. The route from the Brooklyn Bridge plaza is up Liberty street, across Fulton, passing under the elevated railroad into Clinton street, then to Pacific street, turning left into Fourth avenue, and then left into Degraw street, which leads up to the Prospect Park Plaza.

Annual Dinner of the Peorians of Illinois.

PEORIA, ILL., April 8.—The Peoria Automobile Club gave its third annual dinner at the National Hotel. Sidney S. Gorham, president of the Illinois State Automobile Association, was present and spoke on the new State automobile bill now before the Legislature. The dinner was well attended and prospects are good for club activity in Central Illinois during the coming season. The present officers of the club are: President, B. H. Onken; vice-president, A. E. Augerson; secretary, R. A. Whitney; treasurer, W. H. Rees; directors, J. B. Bartholomew, M. E. Magruder, S. K. Hatfield, L. C. Wheeler.

Marylanders Will Have Tour to Jamestown Exposition.

BALTIMORE, April 8.—The Automobile Club of Maryland is planning a tour to the Jamestown Exposition this summer. While the plans for the run have not as yet been thoroughly completed, the prospects are that at the next meeting of the club the date for the tour will be determined and the final arrangements made. Howard W. Gill was in Norfolk and Richmond last week looking over the ground that will have to be covered. He reports that from Stanton to Baltimore there is excellent prospects for a comfortable run, but from Stanton on the roads would stagger a mule.

Entries Will be Plentiful for the New Jersey Run.

NEWARK, N. J., April 8.—Secretary Bonnell, of the New Jersey Automobile and Motor Club, is receiving numerous entries for the three-day endurance run, May 30-June 1. Morristown, German Valley, Washington, Somerville and Newark have been selected as controls for the first day. Thirty-three new members were elected at the last club meeting.

NEW CLUBS ADDED TO THE ROSTER.

Peoria, Ill.—The Pup-St. Louis Auto Club has been formed in this city with the following board of officers: President, Richard Lawrence; vice-president, J. R. Jobst; secretary, Charles Kolmenstetter; treasurer, R. M. Dunham..

Iowa Falls, Ia.—One of the first automobile clubs in this part of the State has been formed by automobilists residing in Wright county. J. Fitzmaurice, of Eagle Grove, is president and Eugene Schaffer fills the office of secretary.

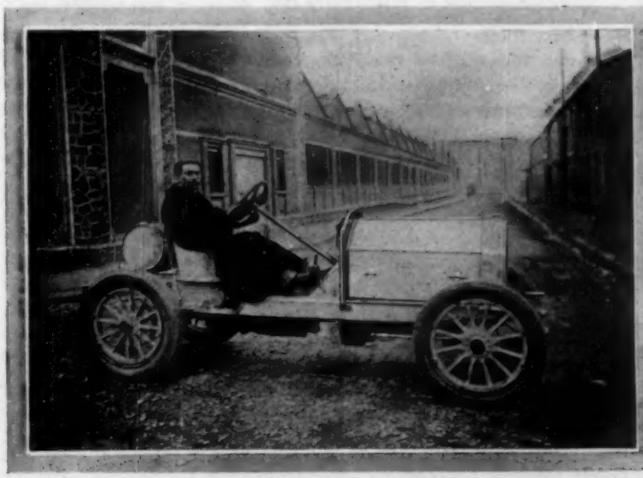
Logansport, Ind.—An automobile club has been formed here to arrange for the reception of the Glidden tourists who will pass through the city shortly after the A. A. A. tour departs east from Chicago. The name of the new organization is the Logansport Automobile Club.

Atlanta, Ga.—The Automobile Country Club, with a membership limited to 100, is the latest addition to this city's representative organizations. Pending permanent organization, Edward H. Inman has been elected temporary president and Charles I. Ryan, secretary-treasurer.

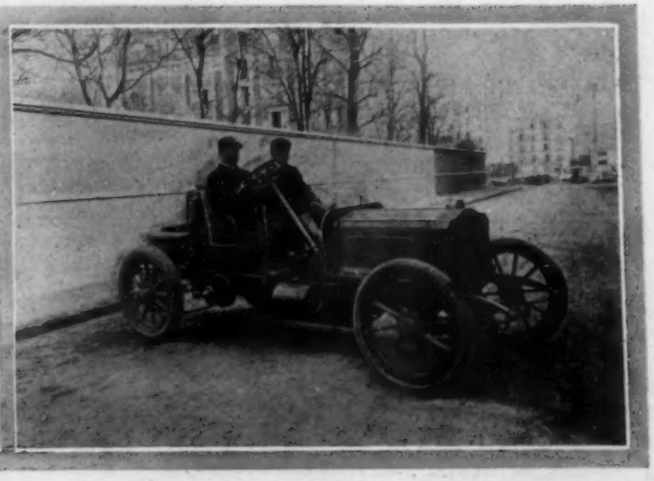
St. Joseph, Mo.—Permanent organization of the St. Joseph Automobile Club has been effected with the following officers: President, Huston Wyeth; vice-president, Charles A. Kelly; secretary, Harry D. Todd; treasurer, E. A. Zimmerman. A miniature automobile wheel, in grass, has been adopted as the club emblem.

St. Louis, Mo.—The St. Louis County Automobile Club has been incorporated. Edward E. Doss, Ellisville, president; Peter Gluck, Gumbo, vice-president, and James Staebell, Manchester, secretary-treasurer. The club, which is composed of autoists in St. Louis county outside the city proper, will make a strong effort for improvement of the suburban roads.

Greenville, S. C.—A club is in process of formation here which will include all automobilists in the county. At the preliminary meeting Perry Beattie presided, and a committee was appointed to draw up a constitution and by-laws. Another committee was selected to nominate permanent officers for the permanent organization, which will be effected within the next ten days.



WAGNER READY FOR SICILY'S MOUNTAIN ROADS.



RADIA, ANOTHER CANDIDATE FOR THE TARGA FLORIO.

AUSTRIAN CLUB TO HOLD INTERNATIONAL RUN.

May 24, 25 and 26 the Austrian Automobile Club will hold an international contest for light touring cars over a circuit of 715 kilometers, starting and finishing at Vienna and passing through Leoben, Klagenfurt and Graz. Only stock cars using internal combustion motors will be eligible. They will be divided into three classes, as follows:

Class 1. Single-cylinder motors having a cylinder capacity not to exceed 1.5 liters.

Class 2. Two-cylinder motors having a cylinder capacity not to exceed 2.5 liters.

Class 3. Four-cylinder motors having an aggregate cylinder capacity not to exceed 2.6 liters.

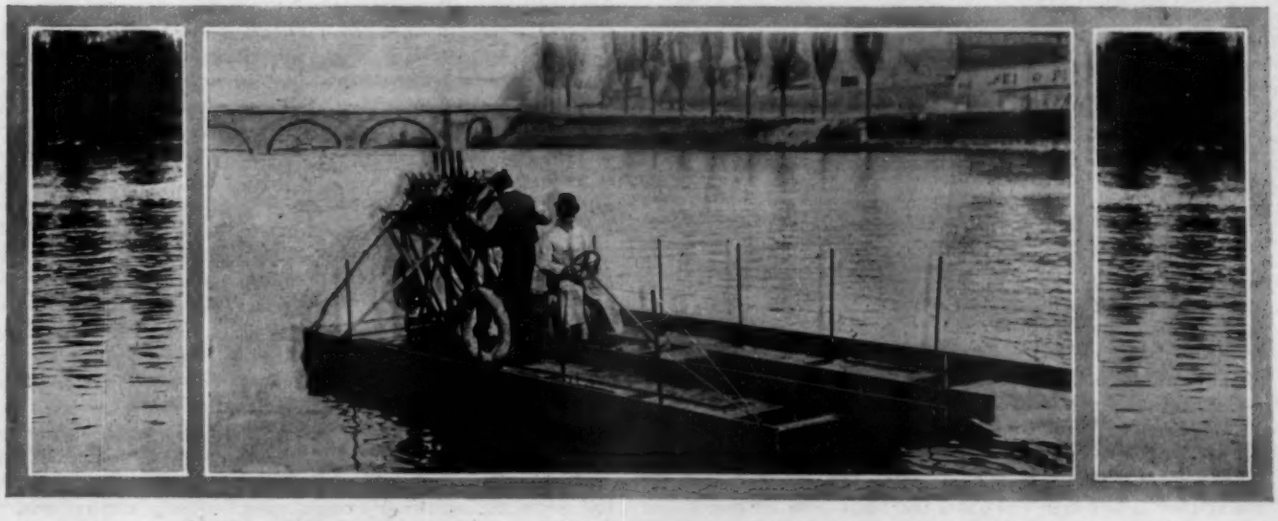
Cars having two-cylinder motors with an aggregate cylinder capacity not to exceed 1.5 liters will be included in Class 1. All cars must carry regular equipment, be provided with two or more comfortable seats, mudguards, muffler, two brakes, three lamps and a regular touring body. Single-cylinder cars must carry two, twin-cylinder cars three, and four-cylinder cars four passengers or their equivalent in ballast. The run is to extend over three days and on each the *"durchschnittgeschwindigkeit,"* or mean speed, must be not less than 25 kilometers per hour for single-cylinder cars, 28 for two-cylinder cars, and 30 kilometers per hour for four-cylinder cars. A speed above 40 kilometers per hour is prohibited. The prizes will be awarded on a point system, figuring one point per minute whether overdue or too early in arriving at checking stations. Three minutes will be allowed in controls.

RECORD AUTO RUN FROM PARIS TO NICE.

PARIS, April 1.—Sorel, the Anglo-Saxon who converted Indian rajahs to automobiling, has set all Paris a-talking by a fast run to Nice on a 60-horsepower stripped touring car. He started from the capital at 2 o'clock in the morning, officially timed, and despite the darkness rushed along at an average of 35 to 40 miles an hour, guided by powerful headlights. Auxerre was reached at daybreak, Avallon, 140 miles from the capital, was rushed through at twenty minutes past 5, and Lyons was traversed at twenty-seven minutes past 9. Passing by way of Aix-en-Provence and Fréjus, the Casino at Nice was reached at seven minutes past 6, the entire distance of 611 miles having been covered in 16 hours 15 minutes. Deducting one hour and twenty minutes on the road for food and gasoline, the actual running time was 14.5 hours, and the average speed over 42 miles an hour. Sorel has broken all Paris to Nice records by this run.

HYDROPLANE BURNS AT MONACO MEET.

MONTE CARLO, April 9.—Excitement was caused here to-day when the ten kilometer hydroplane race was started. There were four competitors, *Nautilus*, *Motogodille*, *Glisseur*, and Comte de Lambert's boat with an aerial propeller. Just over the line the last named craft burst into flames owing to a broken feed pipe allowing the gasoline to escape. Attempts to put out the flames with water proved unsuccessful, and had not a committee boat rushed up with a patent fire extinguisher there would have been a disaster.



COMTE DE LAMBERT'S UNIQUE HYDROPLANE ON THE SEINE, PREPARING FOR THE MONACO RACES.

THE AUTOMOBILE

Vol. XVI Thursday, April 11, 1907 No. 15

THE CLASS JOURNAL COMPANY,
Flatiron Building, Madison Square
New York City

H. M. SWETLAND, President

EDITORIAL DEPARTMENT:
A. G. BATCHELDER, Managing Editor
R. F. KELSEY, Associate Editor C. B. HAYWARD, Engineering Editor
W. F. BRADLEY

BUSINESS DEPARTMENT:
A. B. SWETLAND, Business Manager
L. R. SMITH B. FRANK BARNETT
W. I. RALPH, 1035 Old South Building, Boston, Mass.
C. H. GURNETT, H. H. GILL, 625 Monadnock Block, Chicago, Ill.

Cable Address - - - - - - - - - - - - Autoland, New York
Long Distance Telephone - - - - - - - - 300 Gramercy, New York

SUBSCRIPTION RATES
United States, Canada and Mexico - - - - - - - - - One Year, $2.00
Other Countries in Postal Union - - - - - - - - - One Year, 3.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:
ENGLAND:—Iliffe & Sons, Limited, 20, Tudor Street, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

Entered at New York, N. Y., as second class matter.
The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed	in 1905,	730,000
" "	in 1906,	791,000
" "	This Issue,	18,000
" "	Since January 1,	244,400

Balance of Trade Soon to Favor American Makers. Statistics can hardly be said to form reading of a wildly interesting nature, as a general rule, so that the message they convey is all too frequently lost on the man in the street. To him they are usually forbidding arrays of figures—meaningless except to those directly interested in their compilation. It is hardly necessary, however, to emphasize the vital significance of the message conveyed by a comparison of the import and export returns for the month of February of the present, as well as for the period of eight months preceding the latter, the detailed figures of which are given elsewhere in this issue. The fact that placing these totals together shows an excess of some $165,000 in favor of the American builder means a great deal more than can be conveyed in a few words. It is not such a great while ago that there were no American automobiles at all, and for some time after that there was a period when there were no real automobiles built in this country—even their creators could not stretch natural pride in their own offspring to the extent of placing them in the same class as the foreign machines.

In the few years that have elapsed the whole face of things has been changed. The United States can boast of a greater number of automobiles in constant use than any other country in the world, and in consequence a greater annual output of machines. Judging from the steady upward trend of the American exports in this field, it will not be very long before a similar claim to supremacy may be established here also. The present showing means that in less than five years there has been created a vast American industry—so great that its surplus products are already to be found in every part of the globe in competition with those of French and German makers, who were already well experienced long before the American maker decided to take a hand. It means further that the value of the automobiles now sent abroad every month exceeds that of the foreign cars brought here, though the buying of the latter has increased enormously in the same period. There will be noticed a startling disparity between the number of cars which go to make up the valuation in each case—a fact that may be taken to indicate that the American maker caters largely to what foresight tells him will ultimately constitute the bulk of the demand—the popular-priced car.

✸

Thorough Testing Out as a Safe the Industry. There is one thing that every well-established automobile builder in this country dreads—the specter of overproduction. That it stalks abroad most prominently when the industry as a whole finds itself at the opposite extreme—with well-filled order books, plants running full-handed and overtime in the attempt to keep up with the demand, is quite evident. It is from such conditions that overproduction is most apt to spring. The evil is one that has threatened the industry from time to time throughout the course of its existence—on occasion, seriously, but never less than at the present moment, and as long as present influences retain their power as controlling factors in this direction the danger could hardly be more remote and yet exist.

As an evidence of what is intended by influences in this respect, there may be cited the single illustration of the great pains taken by the makers of high-grade automobiles, not to mention the amount of time and money that are expended, that they may merely satisfy themselves that the cars are fully up to the high standard set, and that they may conscientiously say that nothing in reason has been left undone to make certain of the fact that the car is a perfectly built and perfect-running machine when it leaves their hands. If this alone were the only means taken, it would still remain a powerful factor—in reality it is but the culmination of an almost endless chain of inspections and tests through which every part of the car has passed. As long as every component that enters into the finished automobile is conscientiously inspected and tested and as long as the chassis is put through a trying-out process that thoroughly guarantees its integrity, there is little fear of overproduction—such methods are not consistent with an excess output.

✸

Auto Publicity Experts Are Busy These Days. The constant repetition of a name in print is cumulative advertising that unquestionably results in making the public acquainted with the object so persistently referred to. Some of the publicity experts of automobiling, in their endeavors to bring forth something new and startling which will result in the appearance of the much desired name before the public, are hard put these days for inventing something which has not already been utilized and worn more or less threadbare. If these indefatigable seekers of attention succeed in whatever they undertake, none should begrudge them the results of their labor.

But the general public is beginning to discriminate between what might be designated as substantial publicity and that which is of the frothy sort. The automobile is asked to do all sorts of stunts, and some of these performances prove little and perhaps give an erroneous impression. For instance, of what actual value is it to quote but one instance, to be able to say that the motor of a car ran so many hours and so many days with the bonnet sealed up? Is it a guarantee to every one who buys a car of the same make that he can safely do likewise? Hardly. True it is that a motor which can perform its duty for continuous hours without attention of any sort has performed creditably, but at the same time simply because it may have had some trifling minor trouble, remedied in a few seconds, it should not be given a black mark and its efficiency questioned.

AUTO BILLS IN NEW YORK'S LAW MILL.

ALBANY, N. Y., April 8.—But three motor vehicle bills have been moving in the Legislature the past week, and one of them to which auto owners had no objections has become a law as Chapter 127, laws of 1907, by the Governor's signature. This was G. H. Whitney's bill relating to charge of tolls on bridges and toll roads. As it is a law, automobilists should be acquainted with its provisions. It provides that the owners of toll roads and bridges may collect from "every vehicle propelled by other than animal power, passing over the same, a toll rate not greater than the maximum rate allowed by law to be charged for the passage of vehicles drawn by two animals, provided that for such motor vehicles designed to carry only two persons the rate of toll shall not exceed the maximum rate allowed by law to be charged for the passage of a vehicle drawn over such a road or bridge, without a load, by a single animal."

Of the other two bills only one is actively moving and out of committee, and that is the Young auto-insurance bill. This is a perfected substitute copy of the bill which Mr. Young introduced and passed through the Assembly only to have it amended and finally stopped on third reading in the Senate to enable him and Senator Saxe to introduce the new substitute bill. The same idea of permitting the formation of companies to insure automobiles is involved, but this is the wording of the new section to cover it which is now said to be satisfactory: "against loss or damage to an automobile resulting from collision, and against loss by legal liability or damage to property resulting from collision of an automobile with another automobile, or vehicle, or object."

The Brough bill, amending the impounding and bail section of the present motor vehicle law, is reprinted as last changed and back in house committee on general laws, where it awaits an agreement between the introducer and President O. A. Quayle, of the New York State Automobile Association as to date of further hearing.

The latest freak bill introduced was that of Assemblyman Brooks, of Erie, which requires motor vehicles to be equipped with fenders when using the highways for the protection of life and limb of persons coming in contact with them. It has been referred to the general laws committee.

All other bills are resting in committees.

NEWS OF THE AERO CLUB OF AMERICA.

At the weekly Monday night session at the clubrooms, No. 12 East Forty-second street, New York City, Capt. T. T. Lovelace gave an illustrated lecture on Jamaica a few days after the earthquake. Some of the views were taken from a balloon.

Next Monday night A. M. Herring, a well-known aeronaut, will give a lecture on aeroplanes. Nikola Tesla is one of the speakers of the near future.

On the opening day of the Jamestown Exposition Capt. Lovelace, Alan R. Hawley and A. N. Chandler are to participate in a balloon race. On Saturday, at Philadelphia, Mr. Hawley, in the *Orient*, and Mr. Chandler, in the *Initial*, expect to make a joint ascension.

GLIDDEN CUP RULES TO REMAIN UNCHANGED.

Despite the fact that the Executive Committee of the N. A. A. M. at its session last week passed a resolution asking that the rules of the A. A. A. tour for the Glidden trophy be more or less modified and made less strenuous in character, the Executive Committee of the A. A. A. Touring Board will not make any changes in the rules as originally announced. Chairman F. B. Hower believes that the rules should result in a satisfactory contest, but if his committee finds a decided call for the addition of a runabout class a special cup may be offered for runabout entrants. A dozen or more have come forward and announced their intention to compete in the teams of A. A. A. clubs. It is predicted the list will exceed a hundred.

SUIT SUPPLIES SOME SELDEN STATISTICS.

On Monday and Tuesday of the present week the action in equity brought by the trustees in bankruptcy of the defunct Searchmont Automobile Company, of Philadelphia, Pa., against the Association of Licensed Automobile Manufacturers, was heard before Justice O'Gorman in Part VI, Special Term, of the Supreme Court, in New York City. The plaintiff contends that the association is a partnership, and as such, one thirty-first part of all profits made since the former Searchmont Automobile Company became a member in 1903 is due the latter, and accordingly constitutes one of its assets in bankruptcy. Prior to the hearing of the trial an order was granted by Justice Leventritt to inspect the books of the association and the report of an expert accountant thereon was placed in evidence.

It showed the income of the association during the period in question to have been some $615,000 in round numbers, composed in part of $82,500 in initiation fees and $518,000 in royalties received under the Selden patent; its expenditures during the same period were $228,342 for litigation and $223,902 for administration, leaving a balance on hand of some $163,000. The item for legal expenses was composed in part of $114,100, for carrying on the action against the Ford company; $15,350 for that against the Panhard company, and $4,600 for the present action, all these figures only being carried down to December 31, 1906; they date back to March 15, 1903.

Among the witnesses called were E. H. Cutler, general manager of the association; Marcus I. Brock, assistant manager, and William S. Redding, of Redding, Kiddle & Greeley, patent attorneys, of counsel to the association. Mr. Brock testified that the association did not make a cent of profit from the 1906 show in the Garden, nor for that matter from any show it ever held. In that year between $20,000 and $30,000 was cleared, but it was all returned to the exhibitors in the shape of rebates.

During the course of Mr. Redding's testimony the fact was brought out that the Ford suit would come up for argument next Fall. All the rebuttal testimony is in and sixty days have been granted for the surrebuttal. The record now covers 6,000 pages. Asked the value of the Selden patent, Mr. Redding said it was impossible to state it, but denied having expressed the opinion that it was worth $10,000,000. He was also examined at length regarding the formation of the Association Patents Company. The court granted an adjournment until Monday next for the preparation of briefs.

SECRETARY ELLIOTT'S WESTERN ROUNDUP.

Frederick H. Elliott, secretary of the A. A. A., this week is engaged in a Southern-Western trip which will have more or less to do with State associations in Maryland, Kentucky, Indiana and Missouri. President W. H. Hotchkiss is seeing to it that the national secretary is a busy man, but at the same time he is doing his share of the work. Tuesday night he was an invited guest at the annual meeting of the Pennsylvania Motor Federation at Pittsburg. Before the completion of his administration President Hotchkiss anticipates State bodies across the entire country.

During Secretary Elliott's Western trip there will be a conference at Indianapolis of Western manufacturers interested in the proposed stock car race to follow in October next the Vanderbilt cup event on the Long Island Motor Parkway.

BOSTON TO RETAIN MARCH SHOW DATES.

BOSTON, April 8.—Notwithstanding the fact that the other large shows will be held several months earlier than usual next season, the Boston Automobile Dealers' Association does not propose to change the date of its annual exhibition. At a meeting of the association a day or two ago the subject of an earlier show was discussed and it was decided to make no change, but to hold the 1908 show in the middle of March, as has been the custom for some years past.

COURT UPHOLDS THE OWNER'S RIGHT.

Automobile insurance is an institution of such recent inception that there has not been sufficient time for the courts to establish any precedents, so that any decisions in this connection are of interest to autoists generally. In two actions instituted by Veryl Preston against the Ætna Insurance Company and the Union Assurance Society, the Appellate Division of the Supreme Court in New York has upheld the right of the owner to recover under the long-established ruling in insurance litigation that where a provision in a policy is capable of being construed in two ways, that most favorable to the insured should be accepted.

Mr. Preston insured his machine in both of the above-named companies for one year, the Ætna policy covering "all direct loss or damage by fire except loss or damage caused by fire originating within the vehicle," while the Union policy also excepted "any loss or damage to the automobile or any of its parts or contents caused by fire originating in the automobile itself." While thus insured the machine was run into a ditch and upset by the chauffeur between Pleasure Bay and Monmouth, N. J. The gasoline ran out of the tank, spreading over the surface of the water and took fire from one of the kerosene lamps on the machine with the result that the machine was considerably damaged. Both companies contended that they were exempt under the clauses in question, and the referee before whom the matter was heard sustained them.

Justice Ingraham, of the Appellate Division, in reversing the referee and granting a new trial, says in part:

"The lamp was not within the vehicle but was outside it, nor was the gasoline that ignited and from which the fire originated within the vehicle. If the gasoline had not escaped from 'within' the vehicle, it is quite evident that there would have been no fire. The defendant company was responsible for any damage caused to the automobile, by reason of the burning of the gasoline, whether it was in the tank or had leaked from the tank, provided the fire did not originate 'within' the vehicle.

"It is settled that if a provision in a policy is susceptible of two constructions so that reasonable men on reading the contract would differ as to its meaning, that construction will be adopted which is most favorable to the insured.

"It seems to me that this fire was not within the exception, and that the plaintiff was entitled to recover."

EXPORTS BEGINNING TO OVERLAP IMPORTS.

There seems to be little doubt that long before the end of the present year the numbers and values of American cars exported and of foreign cars imported will have reached a point where the balance of trade will finally incline in the American maker's favor for the first time. That the culmination of the long uphill struggle against great odds is close at hand, is evident from the following figures. During the month of February of the present year there were 62 complete cars imported, valued at $203,106, while during the same month there were 213 American cars exported, having a total valuation of $386,309. This shows the substantial excess of $165,203 of exports over imports, which is offset to some extent by the fact that during the period of eight months ending with February, 1907, there were 831 cars, valued at $2,938,893, imported, while the valuation of the 1,582 cars sent out of the country was but $2,471,859. It is only during the period in question that the value of American exports has reached a point so closely approximating that of the imports.

AUTO SCOOTERS TO REACH THE NORTH POLE.

No less than six automobiles, patterned after the euphoniously-named Long Island scooter, are said to be building for various Arctic explorers, who will use them in attempts to reach the Pole during the summer of 1908. Two of them are under construction for Dr. Frederick A. Cook, of Brooklyn, who once accompanied Peary, and a third is for Anthony Fiala, of Ziegler expedition fame, while the remainder are for other expeditions. Apparently no field is closed to the gasoline motor.

BOSTON-NEW YORK MOTORWAY SUBSIDES.

Boston, April 8.—The scheme for an air-line highway exclusively for automobiles between this city and New York was given its quietus for the current year by the legislative committee on roads and bridges, which this week reported leave to withdraw on the bill for the incorporation of the company, which proposed to take land by right of eminent domain and build the double road highway at a cost of between $12,500,000 and $15,000,000. Just what particular arguments led the committee to decide against the bill are unknown, but at the hearing the committee men appeared to be suspicious that the bill was a disguised attempt to secure a railway right of way, and they were also somewhat skeptical of its financial soundness. Similar bills are pending in Rhode Island and Connecticut.

The action of the committee on roads and bridges on the highway bill is in line with its attitude toward all automobile legislation this year. Of the eight or nine measures brought before it, it has reported favorably on only one, and that is of minor importance, affecting only private roads. It still has under consideration the Governor's recommendation for an examining board for chauffeurs. The taxation committee still has under consideration the bill for an increase in the registration fees by means of a sliding scale based on horsepower.

TIRES WITH THE CAR ARE DUTIABLE.

Washington, D. C., April 8.—The Treasury Department has been advised of a decision of the Board of General Appraisers adverse to the importers in the case of the Auto Import Co., et al., against the Collector of Customs at New York. Complete automobiles "with tools and accessories," so-called, were the subject of the controversy. Duty was assessed on the cars as enterities at the rate of 45 per cent. ad valorem under the provisions of paragraph 193 of the existing tariff act, metal being the component material of chief value therein. The importers claimed that the tires, being made of rubber, were separately dutiable at 30 per cent. under paragraph 449. No objection was made to the assessment as made by the collector on the body of the automobile as distinguished from the chassis, although it was in chief value of wood, nor on the cushions, although they were in chief value of leather.

In its decision the Board stated that the claim set up by the importers was opposed to both reason and authority. "Just why the tires are not as much a part of the machines as the chain, gearing, the wheels, the brake, the seats, the wooden body, etc., has not been made clear to us," continued the Board. "The tires accompany each machine; are packed in the same case with it; they are of the particular size for and are intended to be used on it, and without them the machine would be practically useless."

MAINE LEGISLATURE ACTED WISELY.

Portland, Me., April 8.—Judging from action taken by the Maine Legislature, the movement for good roads has received an impetus that will insure still further action along this most desirable line of improvement. The Legislature appropriated for the development of the highways of the State the sum of $120,000. State Highway Commissioner Paul D. Sargent has been an earnest advocate of the good roads movement, and since assuming office, two years ago, has lost no opportunity of impressing upon the minds of the public the need of better highways for all vehicles as well as automobiles.

Maine automobilists are congratulating themselves upon the death of a very drastic measure introduced in the Legislature to regulate the speed of automobiles in cities and towns. This act was presented by representative Proctor, and provided that five miles an hour should be the maximum speed in cities and towns of the State unless those cities and towns otherwise direct. Through the efforts of Representative Walter J. Mayo the measure met its death in the House even after it had been favorably reported by the committee.

PITTSBURG'S SUCCESSFUL SHOW.

PITTSBURG, April 8.—The first automobile show in Pittsburg opened at the Duquesne Garden to-night with great eclat. Mayor George W. Guthrie pressed the electric button that started the big show and in the presence of over 2,000 people who were representatives of Pittsburg's army of 5,000 enthusiastic autoists. It was a brilliant assembly, and when the thousands of electric lights were turned on and the rare beauty of the gold and green setting brought out fully, Pittsburg had abundant reason to be proud of her show. Over $400,000 is shown in the exhibits. Nearly thirty manufacturers are represented on the green baize floor, and in the gaily decorated booths there are complete lines of automobile accessories.

It was in 1899 that William N. Murray started the first automobile establishment in Pittsburg, and was roundly ridiculed by his business associates for making such a foolish venture in a hilly town. It is the pleasant irony of fate that Mr. Murray, now president of the Standard Automobile Company, is the man who first conceived this show and has done his utmost from the start to make it a great success.

The show committee consists of W. H. LaFountaine, J. H. Cochran and Earl Kiser. The show is being given under the auspices of the Automobile Dealers' Association of Pittsburg, which comprises sixteen of the representative firms in this city. The proceeds of it will be turned into a fund of the association, with a view to further promoting the interests of automobiling in Greater Pittsburg in future times. It was contended by some dealers that the profits should be divided pro rata among the exhibitors, but this idea was ruled out at the end.

The show committee did not get possession of the Garden until Sunday noon, owing to the fact that a dog show had been held there the previous week. This made the task of getting the new floor, stands, booths, decorations and furnishment in order by 8 o'clock Monday night one almost herculean. It was accomplished by the dint of tremendous exertion, and many exhibits were not in place till late Monday afternoon. But when the fashionable assemblage gathered in the evening very few would even suspect that there had been unwonted haste in getting the show proper together.

A fine musical program has been prepared for every evening of the week and special programs will be rendered Wednesday and Saturday afternoons. Another pleasant feature of the show is the speedway in Craig street, in front of the Garden.

DUQUESNE GARDEN'S AMPLE FLOOR IS THIS WEEK THE SCENE OF PITTSBURG'S AUTO SHOW.

BRITAIN'S ROYAL A. C. TO ASSIST TOURISTS.

From J. W. Orde, secretary of the Royal Automobile Club of Great Britain and Ireland, has come the following letter to Georges Dupuy, manager of the American Gold Cup Tour:

Georges Dupuy, Esq., New York City, U. S. A.

Dear Sir: I shall be pleased to give you every assistance possible in connection with the tour of American cars which you are organizing. There are no custom formalities in connection with cars entering England, but it is necessary to obtain licenses. If you will let me know how many cars and how many drivers there will be in the party, I will send you the necessary blank application forms for licenses. I see no objection to the route which you propose following through England, but instead of crossing from Calais to Dover, I would strongly recommend you to cross from Boulogne to Folkestone, as the arrangements for shipping cars on the Boulogne route are much better than on the Calais route.

I should be pleased to extend to the members of your party the special club custom facilities, and I enclose a form by which you will see that all custom formalities in connection with the introduction of cars into France, Germany, Switzerland, Holland, Belgium, Italy, and Austria may be settled here before leaving. I enclose a couple of forms, which will show you what particulars of the cars are required and they also give the various amounts which have to be deposited for the different countries. You may depend upon me to do everything in my power to make your tour a success.

If you let me know the date of arrival in Havre, I will instruct the Club agent there to meet your party on arrival and to make arrangements for the issue of the necessary French licenses without delay. It will only be necessary to take over two unmounted photographs of each driver (head and shoulders only), measuring about 1 1-2 inches by 1 3-4 inches. The agent will attend to all details for you, but as there are so many it will probably facilitate matters if you let me know the make and horsepower of each car, the names of the owners, and the name of each driver.

Yours faithfully, J. W. ORDE,

London, England. Secretary, Royal Automobile Club.

THE MAN WHO GAVE THE MARSH RIM ITS NAME.

It is frequently as much of a wonder how a thing happened to come by its name as how it came to be invented. This is the case of the Marsh quick detachable rim, which is about equally well known by that cognomen as by its other—the Diamond rim—owing to the fact that it is owned and always has been controlled by the Diamond Rubber Company. In this case it took its name from its inventor, W. A. Marsh, of Columbus, O., whose portrait appears herewith, and it first received this appellation at the hands of its original makers, the Bryant Steel Wheel and Rim Company, of the same city. It is one of those little things that cause people who note its simplicity to marvel at the fact that no one thought of it long previously, and one with which, by the way, the inventor did well financially. The demand for Diamond tires on the Marsh quick detachable rim has been unusually large since the beginning of the year and indicates that the call for easily dismounted tires will be a very important factor during the coming season.

W. A. MARSH.

BROKAW LETS SELDEN ACTION GO BY DEFAULT.

Attention is being called to the granting of a decree by Judge Chatfield, sitting in the United States District Court for the Eastern District of New York, awarding an injunction and an accounting of profits and damages, with costs, in favor of the Electric Vehicle Company, owners of the Selden patent No. 549,160, and stress is being laid on the fact that the defendant did not contest the action. Back in 1902 William Gould Brokaw bought a 14-horsepower Renault car, and, in common with many others, was promptly sued as an infringer of the patent. The majority of those who imported cars and were thus sued capitulated; Mr. Brokaw did not. In fact, he sold the car long ago—as far back as 1903—but the action remained on the calendar, and, in the fullness of time, it was reached. To contest it would have cost the defendant two or three times the original worth of the car, so that he permitted the suit to go by default and the Judge could not do otherwise than grant the plaintiff the entire relief demanded. As a result, Mr. Brokaw is forever enjoined from using the car he sold four years ago or importing or making any others, and must account for all profits and gains he made thereby, to which end B. Lincoln Benedict has been appointed master to take an accounting.

HOW AN AMERICAN MORS WAS UTILIZED.

From Camden to Atlantic City, N. J., the exact running distance is 58.3 miles, and through a driving rainstorm early on a recent Sunday morning a 40-52-horsepower American Mors carried two men and 1,000 pounds of Sunday newspapers in 69 minutes.

No accident marred the fast trip, which, however, attracted the attention of J. B. R. Smith, Commissioner of Motor Vehicles for New Jersey, and he took occasion to condemn the New York *Herald* for its violation of the speed laws of the State.

Recently there has been considerable discussion in several States as to the advisability of doing away entirely with speed limits and making the driver of an automobile or any other vehicle responsible for whatever damage might be caused no matter at what speed the vehicle might be traveling. It is the general impression that sooner or later legislation of this character will be universally adopted both here and abroad.

OLDSMOBILE MUDLARK ON 1,000-MILE NON STOP.

PHILADELPHIA, April 8.—Promptly at 9 o'clock, Saturday morning, the engine of the Oldsmobile "Mudlark," which came into the limelight when it successfully accomplished a trip from New York to Florida last winter, was cranked by William Folbarth, of the Oldsmobile factory at Lansing, Mich., and a few minutes later, with a bunch of local pressmen aboard, started up Broad street on what is intended to be a 1,000-mile non-stop run. It is hinted that if at the end of the scheduled distance the engine is running as well as expected the trial will be continued indefinitely. With O. W. Hoffman, T. W. Berger, John Taliss and Mr. Folbarth—all experienced drivers—to coddle the engine and keep it running, no trouble is anticipated in completing the 1,000 miles about Thursday morning. No attempt at speed will be made, and Manager G. Hilton Gantert, manager of the Motor Shop (which handles the Oldsmobile here), who is engineering the run, confidently expects the "Mudlark" to live up to its reputation should the expected April showers make the going heavy on the suburban roads.

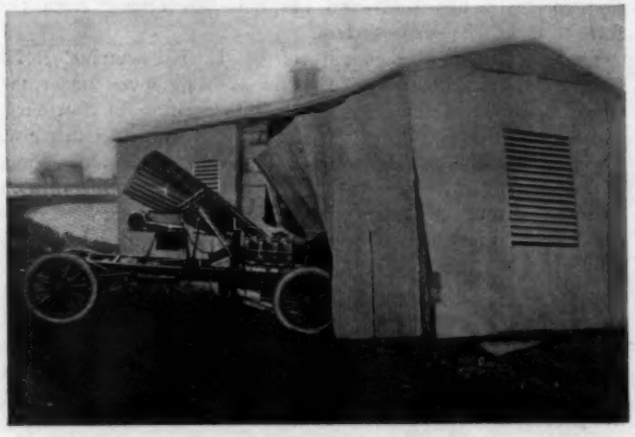
BERKSHIRE COMPANY HAS BEEN REORGANIZED.

PITTSFIELD, MASS., April 8.—The Berkshire Automobile Company has been succeeded by the Berkshire Motor Car Company, the new concern having purchased the assets including plant, patent rights, finished cars, and shop equipment. The new company has just increased its present facilities 50 per cent. and installed the latest improved machinery to manufacture the well known Berkshire cars. The capitalization of the new concern is $400,000, $100,000 preferred and $300,000 common stock, the new capital being secured by a bond issue of $100,000 which is to be devoted to the development of the business.

The new company will build the 35-horsepower Berkshire model exclusively, the same chassis being fitted with either a runabout or touring body. H. D. Sisson has been elected treasurer and general manager of the new company, and a complete list of officers will be announced at an early date, as soon as the full details of the reorganization have been formulated and completed.

UNINJURED, BUT DEMOLISHED THE HOUSE.

A Rambler automobile was being tested on the factory track, when, in trying to pass another car by cutting inside, it struck an oil house standing on the edge of the track. The blow was so forcible that the machine swung round nearly ninety degrees, with disastrous results to the building. The remarkable feature was that as the force of the impact was taken by the left front wheel and the spring extension of the frame, the machine suffered no injury whatever. The experiment will not be repeated, for the Rambler people need their buildings.



WHERE THE RAMBLER BUTTED INTO THE OIL HOUSE.

BROAD PATENT ISSUED ON ELECTRIC VEHICLE.

With the issue of letters patent No. 845,105 on February 26 last to H. P. Maxim and the Electric Vehicle Company, there is strikingly recalled what may well be termed almost the entire span of life of the motor vehicle industry in this country, for the application for the patent was filed on May 26, 1899, a time when the electric was about the strongest factor in the field. The frames then in use extended from axle to axle and their length and design had to be changed for almost every slight variation of the chassis, so that every builder in the business was developing a great variety of frames and running-gear elements, a broad patent granted to A. L. Riker some time previous being considered to dominate the situation.

Mr. Maxim conceived the idea of employing a complete steering truck carrying the spring suspension, axle and wheels, and a second truck independent of the first, also embodying the same elements and adapted to have the motive power transmitted to it. By this arrangement it was possible to make the two elements in standard sizes adaptable to bodies of various types and sizes. This interchangeable system attracted considerable attention abroad and resulted in successful negotiations for its exclusive use by certain prominent builders on the Continent. Not a few of the original vehicles constructed on this principle are in use to-day. The patent just granted is very broad in its specifications.

SELLING AUTOMOBILES AT AUCTION.

The first auction sale conducted in New York City by the recently organized Automobile Auction Company of America was held last Tuesday, and, despite the storm, over 100 people were present. Several cars were sold, among them being an electric victoria in good condition, "knocked down" for $125; a 1905 16-horsepower Clement-Bayard for $1,150, and a 1904 24-horsepower Berg for $910. The company conducting these auctions recently leased the entire building at 41-43 West Sixty-third street and announces its intention of conducting sales weekly. J. Hatfield Morton is the auctioneer. When the cars are offered their exact condition is stated, and the sales are made with the condition that the purchaser will have his deposit returned if the vehicle is not satisfactory. For two days previous to the sale the cars are demonstrated to possible purchasers. A similar company has been in existence in London for several years, and disposes of many cars annually. While there have been several automobile auctions held in New York City, this company is the first to organize the business on similar lines to those practised by legitimate firms in the horse and carriage trade.

LOGAN ADVANCES PRICES ON SEMI RACER.

Owing to advances in cost of labor and materials, as well as the fact that the design of the car has been developed far beyond the original estimates, the Logan Construction Company, Chillicothe, Ohio, have found it necessary to advance the price of their "Blue Streak Semi-Racing" type to $1,750, the increase to become effective on May 1. The new price includes full equipment, consisting of top and lamps, but orders will be received up to May 1 at the old price of $1,500 without top.

MAXWELL CARS MAKE SUCCESSFUL RUN.

In charge of H. A. Grant, of the Maxwell-Briscoe Company, the three cars of the latter made a most successful run from Trenton to Atlantic City, N. J., last week, using alcohol, kerosene and gasoline as their respective fuels. The official observers were H. de G. Robinson of the Automobile Club of America, and S. Y. Beach. It is expected that the official report of the run will be of considerable practical value.

IMPORTERS' JANUARY SHOW UP FOR SANCTION.

Following the steps already taken with a view to the holding of a show of imported cars later in the season, owing to the recent developments in the show situation, a sanction for a January date in Madison Square Garden has been applied for by the Importers' Automobile Salon, Inc., and was up for consideration by the Board of Managers of the Association of Licensed Automobile Manufacturers at its meeting on Tuesday last. The subject was referred to the show committee, to which the following members were elected: Colonel George Pope, Pope Manufacturing Company, chairman; Charles Clifton, George N. Pierce Company, and C. R. Mabley, Smith & Mabley, Inc. Charles Clifton, who is also the president of the association, succeeds Marcus I. Brock as member of the show committee. Mr. Brock was relieved of show duty at his request, owing to increased demands upon him as assistant general manager. The following companies were represented: Apperson Bros. Automobile Co., Selden Motor Vehicle Co., Buick Motor Co., Cadillac Motor Car Co., Electric Vehicle Co., H. H. Franklin Mfg. Co., Hewitt Motor Co., Knox Automobile Co., Locomobile Co. of America, Northern Motor Car Co., Olds Motor Works, Packard Motor Car Co., Peerless Motor Car Co., George N. Pierce Co., Pope Mfg. Co., Pope Motor Car Co., Royal Motor Car Co., Alden Sampson, 2d, Smith & Mabley, Inc., F. B. Stearns Co., Stevens-Duryea Co., Studebaker Automobile Co., Waltham Mfg. Co., Winton Motor Carriage Co.

A NEW JERSEY ROAD TO BEWARE OF.

Cortland Field Bishop, chairman of the A. C. A. Maps Committee, asks that public attention be called to the abominable condition of the highway between Rahway and Metuchen, N. Y. Owing to faulty construction and neglect, upheavals have occurred on the road and there are mounds at frequent intervals three feet high. Only a few days ago, while traveling over this stretch, the macadam gave way and Mr. Bishop's machine sank down on one side to such an extent that it was in danger of overturning. With the aid of a team it was over two hours before the automobilist could be extricated. A similar fate befel a large observation car.

FOUR DRAGONS FOR THE A. A. A. TOUR.

Official entrance of four Dragon cars has been made in the coming A. A. A. tour for the Glidden trophy. H. T. Branstetter, of the Chicago Automobile Club, and agent for the Dragon car in Chicago, is one of the entrants; John Kane Mills, of the Quaker City Motor Club, of Philadelphia, and president of the Dragon Automobile Company, is another, and A. L. Kull, of the New York Motor Club, and New York agent of the Dragon, is a third entrant. The name of the entrant of the fourth car has not yet been announced.

THREE STEARNS FOR THE A. A. A. TOUR.

F. B. Stearns, president of the automobile company of the same name, has written the Cleveland Automobile Club asking for the honor of representing it in the annual A. A. A. tour for the Glidden trophy. Mr. Stearns states that his company will enter as many machines as the club may designate, but not less than three, these to be driven by such well-known operators as Holden, Vaughan and Leland. The cars used will be the regular 30-60-horsepower 1907 type.

Montpelier, Vt.—The Pavilion Hotel livery stable at Montpelier, Vt., which has been closed for some months, has been leased by John J. Glinney, who will fit up the basement for an automobile garage. It will be opened for business about the first week in May.

SPARK COIL COMPANY TO QUIT PITTSFIELD.

A half interest in the Pittsfield Spark Coil Company has been obtained by Zenas Crane and Senator W. M. Crane. Concurrently with this news comes the announcement that the company will move from the present factory in Pittsfield, Mass., to the larger Crane factory at Dalton, Mass., recently vacated by the Dalton Shoe Company. A lease for five years has been obtained, with the privilege of buying the property at the expiration of that time. A much-needed gain in space will be made by the removal, which is expected to be terminated by July 1, the new factory having 33,600 square feet of floor space, compared with 11,000 square feet in the old building. William P. Wood, treasurer and manager, to whose well-directed efforts the company's marked success is due, will continue to look after its interests.

HOUPT ON VANDERBILT CUP REASONS.

"What bearing has the Vanderbilt Cup race on the selling end of the automobile industry?" is a question that is often asked. Harry S. Houpt, New York City agent for the Thomas, who entered one of the Thomas racers in the Vanderbilt last year, had this to say when the question was put to him:

"Prestige; that is the answer. It would redound to the good of the entire American industry. If I had merely been seeking advertisement last year I would have entered a stock car. But we are influenced by a stronger motive in contesting for the big prize. We want to win that cup from a sporting standpoint, and we know that unlimited benefit will come to the American industry as a whole if we do."

"THE WHITE HOUSE" OF L. I. PARKWAY.

The White Company, of Cleveland, through President Windsor T. White, has made formal application to A. R. Pardington for a plot of ground adjacent to the Long Island Motor Parkway. When the purchase is completed there will be erected on this plot a commodious headquarters for the use of owners of White steamers and their guests. The structure is to be called "The White House," and, as there are over a thousand White owners in Greater New York and vicinity, the building will be of no mean proportions.

THOMAS TO MAKE A HIGH POWERED RUNABOUT.

Within thirty days a new high-powered runabout will be placed on the market by the E. R. Thomas Motor Company, of Buffalo, N. Y. The most distinctive feature of the new model is a special motor of great power with four cylinders cast separately and a five bearing crankshaft. The price of this car is $4,000.

NEXT SESSION A. L. A. M. MECHANICAL BRANCH.

At the next meeting of the Mechanical Branch of the Association of Licensed Automobile Manufacturers, to be held in New York, April 12, the subjects to be discussed will be self-starting devices, standardization of tires and rims, and alcohol as a fuel. These subjects have attracted the attention of the engineers of the branch for some time, and experiments and investigations regarding them have been under way. It is expected that some results of material value will be obtained and immediate action taken. The work of the committee appointed for standardization of tires and rims will be one of the most important accomplishments of the branch and in keeping with the standardization of bolts and screws and the adoption of uniform spark plugs.

ADDING TO THE AUTO INDUSTRY IN DETROIT.

DETROIT, MICH., April 8.—The Michigan Crucible Steel Castings Company, 248 Guoin street, this city, has been organized for the purpose of manufacturing crucible steel castings, and will make a specialty of catering particularly to the automobile trade. R. F. Flinterman, president and manager of the new concern, has recently severed his connection with the International Harvester Company, where for several years he has been in charge of its laboratories and foundry practice. Mr. McLeod, whose name is familiar to consumers of crucible steel castings, will have direct charge of the foundries. The company will be ready to produce castings by May 1.

PACKARD FACTORY CONTINUES TO ENLARGE.

Despite the great amount of enlargement that was designed and carried out during the past year at the Packard works at Detroit with a view to providing room for facilitating the handling of the 1907 output, the company has again undertaken building operations with the first sign of warm weather. Some idea of the extent of the plant may be gained from the accompanying photograph of it, which shows in addition the latest increase now in course of construction. This is to consist of a third story on the outside triangle that was built last summer. This is more than 950 feet long by 60 feet wide, and is of the same fireproof construction, using steel and concrete as the two lower floors. That the numerous additions planned and carried out during the past year or two have been a matter of wise foresight on the part of the Packard Motor Car Company, is evident from the fact that their tremendously increased facilities have made it possible to maintain deliveries well in advance of the schedule mapped out at the beginning of the season.

CAPACIOUS MANUFACTURING PLANT OF THE PACKARD MOTOR CAR COMPANY, AT DETROIT, MICH.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

A two-story building is to be put up at 1452-1456 Michigan avenue, Chicago, for the Buick Motor Company.

An additional fifteen acres of land have been secured by the Buick Motor Company at Flint, Mich., to be used for experimental and testing purposes.

The Locomobile Company has had plans prepared for a four-story brick addition to be erected at its plant near Seaside Park, Bridgeport, Conn.

The interest taken by the king of England in all branches of automobiling is well known. In the matter of tires for his own cars, his majesty has ordered Continentals as the regular equipment.

The Phoenix Auto Supply Company, St. Louis, Mo., with A. L. Dyke as president, has increased its capital stock to $12,000 fully paid in. A new catalogue has been issued by this firm which will be mailed on application.

A site has been purchased in the Black Rock district, Buffalo, N. Y., on which will be erected a $30,000 plant for the Fedders Manufacturing Works, constructing square-tube radiators. The new premises will be occupied July 1.

The contract has been let for the erection of the big plant of the Maxwell-Briscoe Motor Company, at Newcastle, Ind., for $150,000. The building will cover eight acres. Work will be commenced immediately and be continued night and day.

The Stackpole Battery Company, of St. Mary's, Pa., maker of the Elk Brand dry cells, is erecting a large addition to its already extensive plant. The improvement was necessary owing to the company's rapidly increasing trade. Night and day shifts have been working at the factory for some time.

Among the applications received for Truffault-Hartford shock absorbers, is one from Kenneth R. Otis, who had his four-cylinder Pierce Great Arrow equipped with the shock absorber last year, and has just written Mr. Hartford that he will have the six-cylinder Pierce Arrow equipped with a set of Hartford suspensions when he goes on the Glidden tour with it this year.

Although it has yet to celebrate its first anniversary, the E. R. Thomas Detroit company has found it necessary to make a material increase in the size of its plant. Recently a new testing barn was added and now plans have been accepted for two new buildings, while the details of a third are being considered. At the present time four Thomas Forty's are being turned out daily.

Georges Dupuy, manager of the American Gold Cup Tour, has received information from his Paris agent, John C. Hoveman, that the Mitchell Motor Car Company has entered a car in the tour to start from Havre. Mr. Sauerbach, manager of the Paris branch of the Mitchell Motor Car Company, has been very desirous all along that there be a Mitchell car in this tour. He has also proffered the use of a Mitchell to Mr. Dupuy for personal use while in Paris.

The factory and equipment of the Eisenhuth Horseless Vehicle Company, at Middletown, Conn., have been sold at public auction by order of the United States Court in Bankruptcy. Everett J. Esseltyn, of New York, made the last bid of $21,000, at which price he secured the property, subject to a mortgage of $125,000. It is understood that the property was purchased for John W. Gates, of New York, and that business will be resumed and somewhat extended.

Traffic Manager Marvin, of the Association of Licensed Automobile Manufacturers, has just issued a warning to the members of the association regarding the shipment of automobiles. With the increasing shipments of automobiles coming on and the decreasing number of available and suitable freight cars, a situation is immediate that may result disastrously to some shippers. He strongly advises loading as many automobiles as possible in each freight car, if necessary, holding shipment until enough machines are ready to completely fill each car.

The historic Highland Park track at Detroit, Mich., will not be cut up into building lots, as was at first anticipated, at least not for the present. Instead, this summer will see some excellent racing at the former fort of the bangtails. The Ford Company has rented the grounds for the summer, and purposes to use the course for testing. The factory will hold a series of race meets for demonstrators each Saturday afternoon. The drivers will draw lots for cars, and percentages will be allowed according to the order of finishing. Records of the work of the drivers will be kept and at the end of the season cups and medals will be awarded the leading drivers.

In the business of automobile building as in many other lines, the progressive manufacturer usually has a choice of policies—he may devote all his energies to the building of a comparatively few high-priced cars, or to the turning out of a large number at a much lower figure. It seems somewhat of a coincidence that such a number of the members of the American Motor Manufacturers' Association should have chosen the latter policy on the basis that the ultimate demand would be for a comparatively low-priced car. Nearly all the small two-seated cars selling for $1,200 or less—those that earned the original title of runabouts—are now made by members of this association.

The men who do the road testing of Thomas Flyers in and about Buffalo will be forced within the next few weeks to give up one of their favorite roadways. When the temperature begins to drop along the northern part of New York canalmen tie up their boats and go into winter quarters. As soon as they do the Thomas testers take to the tow path of the historic old Erie canal, where they may speed along to their hearts' content. This they have been doing all winter and the path has proven a good speedway. Now that spring is at hand the boat owners are beginning to end their hibernation period, traffic along the famous waterway is being resumed and the testers have been forced to take to the roads.

An illustration of how much work and expense is involved in combining simplicity and strength and reducing the number of parts in the modern high-grade car, is found in a factory detail related by James Joyce, general manager of the American Locomotive Automobile Company. An interchangeable half-time shaft, having the cams integral with it, is a distinctive feature of the Berliet car. For making these accurately alike, so that each one will fit any car perfectly, machine work of great precision was required and this necessity called upon the resources of the locomotive concern for a new piece of machinery, which was duly created. By means of it, the shafts and cams are turned out from the solid steel bar, with a master cam compelling accuracy.

Someone counted up not long ago and found that there were sixty-four trades and professions represented in the work done on an automobile before it could be completed. At one of the factories in the country, however, that of the E. R. Thomas Motor Company at Buffalo, there is one which he did not include. It is that of interpreter. John Kruchten holds the position there, and he can write and speak English, German, French, Italian and Spanish. Most of Kruchten's work is concerned with the members of the foreign engineering department of the company. The men who compose this can all speak more or less English, but when technical matters come up and even the slightest mistake or misunderstanding must be carefully avoided, the interpreter has his work cut out for him.

RECENT TRADE REMOVALS.

The Uncas Specialty Company, of Norwich, Conn., has moved its New York office from 1555 to 1781 Broadway.

Leon Rubay, the well known importer of high-class sundries and ignition appliances, announces his removal from 140 West Thirty-eighth street to his new building, 1697 Broadway, New York City, between Fifty-third and Fifty-fourth streets.

NEW AGENCIES ESTABLISHED.

The Trident Tire Company, of New York City, has established a Philadelphia agency at 903 North Broad street.

New agencies have been established by the Wayne Automobile Company, of Detroit, Mich., as follows: Buffalo, J. A. Cramer, 737-741 Main street; Omaha, Bergers Automobile Company, 2025 Farnam street.

A Wilkes-Barre sub-agency of the Ford Motor Company has been established through the efforts of A. A. Jones, of the Philadelphia branch house. The Pennsylvania Armature Works will handle the Ford in the Luzerne county metropolis.

The Atlas Motor Car Company, of Springfield, Mass., has placed the agency for the Atlas runabout with the Crane Automobile and Garage Company, of Providence, R. I., for that section. The Crane Company is building a fine new garage, which when completed will be one of the best in Rhode Island.

The Hercules Auto Specialty Manufacturing Company, of Los Angeles, Cal.,

maker of the Hercules shock absorber, has established a Chicago office at 95 Dearborn street, and is having the Hercules manufactured in that city in large quantities by the Turner Brass Works. In the East the National Sales Corporation, 296 Broadway, New York City, is the factory agent.

The Electric Vehicle Company has closed its branch in Washington, D. C., which was conducted under the name of the Washington Electric Vehicle and Transportation Company. The Columbia agency has been placed with the Dupont Garage Company, which operates a large garage and salesroom at 2020-2030 M street, northwest. The garage in the Panorama building on Fifteenth street, formerly occupied by the Electric Vehicle Company's branch, will be used by the Dupont Company for its commercial business.

PERSONAL TRADE MENTION.

Mason B. McLaughlin, for some time connected with the selling force of the White Company's Philadelphia branch, will in the near future go to Cleveland as assistant to Vice-President Walter C. White.

General Sales Manager Charles B. Shanks, of the Winton Motor Carriage Company, accompanied by Mrs. Shanks, visited the company's branches in Boston, New York and Philadelphia this week.

Fred J. Pardee, of the Pardee-Canary Company, Chicago, has been appointed general sales manager of the St. Louis Car Company, of St. Louis, Mo., makers of the American Mors, vice George C. John, resigned. Mr. Pardee will resign as president of the Pardee-Canary Company, but will remain as a director in the concern, which handles the American Mors in Chicago.

G. C. Lewis, formerly of the Wayne Automobile Company of Boston, which last year represented the Wayne in the New England territory, is now at the head of the A. L. Kull Automobile Company, 1677 Broadway, New York agent for the Wayne and Dragon. Mr. Lewis is widely and popularly known in the trade, having been traveling representative for the Wayne prior to his Boston connection.

Benjamin Briscoe, chairman of the Committee of Management of the American Motor Car Manufacturers' Association, has gone to California for a rest and incidentally to look the field over for a factory for Maxwell cars on the coast. He sailed last Thursday on the steamer *Proteus* for New Orleans and from there will go to Los Angeles, afterwards visiting San Francisco, Portland, Seattle and Salt Lake City. Mrs. Briscoe accompanies him.

Otis R. Cook has resigned his position as general western representative of the International Rubber Company, of Milltown, N. J., to accept the position of general representative of the Firestone Tire and Rubber Company, of Akron, O. Mr. Cook was connected with the B. F. Goodrich Rubber Company for twelve years, and went with the International people last August. He is one of the best known men in the tire selling trade, and one of the most experienced.

Not the least surprising of the recent numerous changes on the part of prominent personages in the trade, is that of Walter G. Morley, the announcement of whose resignation from the Aerocar Company, of Detroit, was hardly looked for. Mr. Morley has long been identified with the automobile industry, and though he is mum as to the new connection that has caused him to give up the secretaryship of the Detroit makers, it does not seem likely that he is now going outside of it. He has let it be known that he is to be even more prominently connected with another industry, but one intimately related to automobile building.

NEW TRADE PUBLICATIONS.

The Bay State Forty is a 40-horsepower touring car built by the Bay State Auto Company, of Boston, and embodying quite a number of distinctive features. A twelve-page booklet just published by its builders tells all about the new machine.

"Lozier Lessons" is the title of a small brochure issued by the Lozier Motor Company, Fifty-fifth street and Broadway, dealing in an interesting manner with the strong features of Lozier machines. Originality, easy driving, comfort, cleanliness, are a few of the twenty-two lessons that Lozier gives free to those who ask.

The 1907 catalogue of the Waltham Manufacturing Company, of Waltham, Mass., deals with a big line of models from 20-horsepower four-cylinder cars to small single-cylinder motors with friction drive. Each type is fully illustrated and described and sketches of the mechanical parts of the more important models are given. Pleasure as well as light delivery vehicles are included in the catalogue.

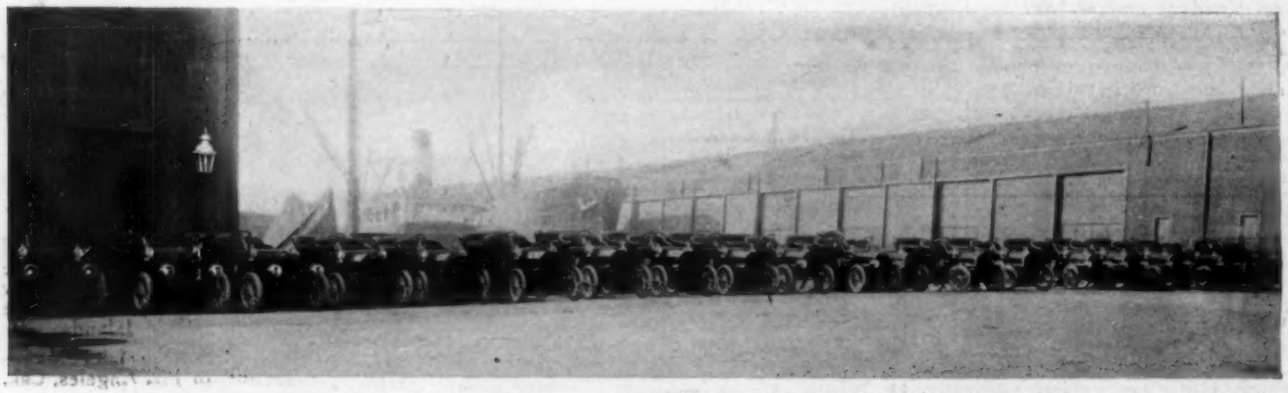
Force-feed lubricators for automobiles and motor boats is the theme of the McCord & Co., Chicago, handbook. All standard types, each one designed with the view of meeting some particular requirement, but all embodying the principle of force feed by separate hydraulic pumps for each feed, working in unison, are fully described. Asbestos-lined gaskets, coiled-wire belting and McCord radiators are also dealt with in the well-produced handbook.

A MODEL BOSTON STORE.

E. L. Thompson, formerly of the Angier Company, has taken hold as manager of the Boston branch of the Post & Lester Company, whose headquarters are at Hartford, Conn. The new establishment, of which a

BOSTON STORE, 815 BOYLSTON STREET.

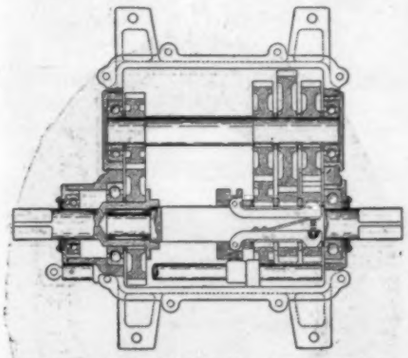
view of the exterior is pictured here, is centrally located in one of the busiest automobile districts of the Hub, and is one of the largest and best equipped accessory stores in that city. The interior is attractively finished in weathered oak, plate glass cases being employed to display the goods in a pleasing and effective manner. In addition to handling one of the most complete lines of accessories in New England, the company has secured the exclusive agency of the Continental tires, Splitdorf coils and a number of other well-known specialties. The store will be thrown open for business for the first time on April 12, and as Mr. Thompson has had considerable experience in the accessory line and is well known throughout New England, its success would seem to be immediate.



ONE DAY'S SHIPMENT OF THIRTY REOS, RECEIVED MARCH 30 BY R. M. OWEN & CO., NEW YORK.

INFORMATION FOR AUTO USERS.

The Schabinger Positive Gear Transmission.—Chas. H. Schabinger, Detroit, Mich., has produced a positive gear transmission which he claims will overcome the disadvantages of the different types of gearing now in general use. His invention relates to a sliding key transmission, with keys sliding in the slot of the main driving shaft; the ends of the keys are pinned to the shifting collar, which is moved backward and forward by the shifting fork; as the shifting collar is moved along the driving shaft the free ends of the kegs are forced into the double keyway of each driving gear wheel, by springs, thereby keying the loose gears on the driving shaft, causing power to be transmitted to the counter shaft, then back to the driving sleeve, which has a clutch formed on the power end. For direct drive the shifting collar is moved with the keys along the driving shaft until it meshes with the driving sleeve clutch, the free ends of the keys are then out of mesh with the gears, and rest on the inside of the thrust ring, allowing the gears to freely revolve. The inventor claims that this system will do away with stripping of teeth in changing speeds; in fact, change speeds may be made without releasing the clutch.

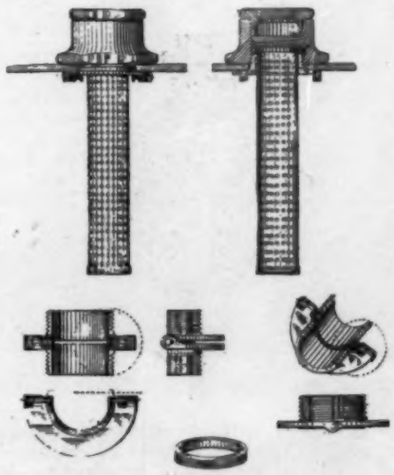


DETAILS OF SCHABINGER TRANSMISSION.

Light Weight Auto for Two People.—The A. B. C. machine is a construction of a very light two-passenger auto on the buggy principle, which will cost no more than a horse and buggy, which will give much less trouble and which will travel over any road. The want is supplied by the Motor Vehicle Manufacturing Company, 1512 Locust street, St. Louis, Mo. The engine is a 6-horsepower water-cooled single-cylinder two-cycle, 4 1-2 by 4 inches vertical. Transmission is of the friction type, the flywheel being faced with a composition metal disk 16 inches in diameter dressed on both sides. A 15-inch wheel works across the composition metal plate, contact being regulated by a ratchet foot lever. A hand lever shifts the contact wheel across the metal disk and any number of speeds may be obtained. Final drive is by means of a single roller chain from the countershaft to the rear axle. Ignition is by jump spark, the current being supplied by six dry cells. Three gallons of gasoline, enough for 60 or 80 miles, can be carried and the water tank and radiator hold about six gallons.

A. B. C. TWO-PASSENGER AUTO.

Gasoline Safety Devices.—The devices handled by the Non-Explosive Safety Naphtha Container Company, of 1133 Broadway, have a wide field of application and appeal very generally to automobilists. Among these devices may be mentioned a filler and safety cap for automobiles, which will prevent back draft and explosion when filling, also prevent incandescent flame from forming when a fire occurs with a tank filled with the proper air and gas mixture for an explosion. It consists primarily of a safety cap and vent with a small ring of fusible metal which will melt at 200 degrees Fahrenheit, release the top plate and allow the gas to escape and burn on the outside of the container. The cap and diaphragms of gauge and perforated metal prevent the flame reaching the interior of the container, but allow the gas to pass out freely. An application of the same device is made to the tanks of automobiles in such a way that if a fire occurs the gasoline supply to the carbureter is shut off and the pressure released by the instantaneous opening of a safety valve. If the fire were allowed to continue it would burn itself out, but the tank would not explode. Applied to filler cans as used in garages, the safety device prevents any flame reaching the interior of the can; even should a light be applied to such a vessel it would burn harmlessly, and no flame would get inside to cause an explosion.

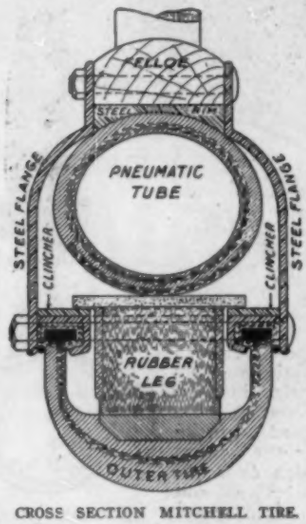


FILLER AND SAFETY CAP FOR AUTOS.

The "Cee More" Goggles.—The feature of these goggles is that they have curved amber lenses 1 1-2 by 3 1-8 curved at one end, square at the other, mounted in aluminum, fitted with leather trimmings. The amber glass is recommended by oculists on account of it being more restful to the eye than any other glass. The goggles are cool and comfortable, fit any face and give extra large vision. They fold up in small pocket case and are sent prepaid, with stick of anti-steam to prevent steaming of lenses. They are manufactured by the Bay State Goggle Company, 37 Prichard avenue, Somerville, Mass.

"CEE MORE" CURVED LENS GOGGLES.

A New Non-Puncture Tire.—A glance at the cross-section cut of the Mitchell punctureless pneumatic tire, shown herewith, will clearly demonstrate the nature of this trouble-avoiding device. Attached to the felloe are a couple of steel flanges, holding within them an ordinary pneumatic tube. Secured to the end of the flanges is the outer shoe, the space between the tube and outer shoe being filled by a solid rubber leg or plug made in sections, each overlapping, presenting what is practically a continuous surface to the inner tube. The leg is held firmly in position by a metal clincher, through the sections of which it moves up and down freely, but without the slightest friction. With this construction the weight of a car coming or the tread of the outer casing forces the rubber leg upward, compressing the inner tube. The air chamber being placed three inches under the outer shoe and protected on the sides by the deep metal flanges, can not be punctured. Inflation is effected in the ordinary way. The Mitchell punctureless pneumatic tire is manufactured by the Commonwealth Rubber Company, Reading, Mass. New York agents are Nash & Bartlett, 1001 Flatiron Building, New York.



CROSS SECTION MITCHELL TIRE.

An Article for the Ladies.—The Liscombe automobile veil is specially designed to protect the hat and hair from dust and the effects of the wind, while not unnecessarily obstructing the view or being heavy and cumbersome about the head. The veil passes over the hat, and attaches closely round the neck, thus

THE LISCOMBE AUTO VEIL.

the most elegant coiffure remains undisturbed even after a long automobile ride in an open car. These veils are made to order in all shades of silks and chiffons to match automobile cloaks and costumes by Lucia E. Liscombe, 119 Massachusetts avenue, Boston, Mass.

New Form of Shock Absorber.—Whether they are called shock absorbers, suspensions, anti-jolts, or anything else, the benefits derived from some form of spring check between the body and axle of the automobile are undoubted, and, as a result, these appliances are being improved constantly and new forms are making appearance.

The accompanying illustration shows a new arrangement combining both springs and friction disks. Frictional resistance to the movements of the springs is offered by a pair of conical plates between, with a correspondingly double concaved plate clamped between them; these parts are held in constant contact by a six-armed spring washer, the tension of which is regulated by a nut. Wear is automatically taken up by the cones advancing into their recesses in the central plate. The central plate is integral with the lever, and on the opposite end is the spring rigging, as the illustration shows. The friction end of the device is attached to the frame of the car and the opposite end to the axle by means of the clamp on the end of the rod.

The casing is pivoted to the small end of the lever, and inside the casing is a small plunger attached to the rod, the plunger moving up and down in the casing after the manner of a piston, while the rod works through a guide like a piston rod. Above and below the plunger are helical springs, which offer resistance to the movement of the plunger in both directions.

When attached to a car the action of the device is as follows: The springs are of such strength that they allow the car to rise and fall somewhat on its own springs, and consequently the plunger works up and down in its casing, without oscillating the friction disks with relation to each other. This allows the car springs to play as freely as is necessary on smooth roads. When rough roads are encountered, however, the motion of the car springs will be so great as to compress the check springs to such an extent that the friction disks will oscillate upon each other and check the tendency of the car springs to compress or recoil with abnormal violence. All parts of the device, with the exception of the connecting link, the spring steel washer and the helical springs, are of bronze. It is made by the Hercules Auto Specialty Mfg. Co., of Los Angeles, Cal.

Bullard Speedometers.—Nothing to lubricate about it and no adjustments of any kind necessary are two of the important features of the Bullard instruments. They are constructed on the same principles as

the governors used on high-speed engines for electric lighting where uniform speed and steadiness are of vital importance. At the maximum speed the power exerted by the weights amounts to six pounds, thus holding the pointer firm and making the instruments "dead beat" at every division of the scale. Another advantage is the comparatively low speed of the flexible shaft which turns less than twice as fast as the wheel. The complete speedometer comprises a minimum of parts and can be attached to either front wheel by a universal front bracket that fits any car, the wheel gear and flexible shaft also being readily put in place, a simple and effective form of universal joint being employed. It is enclosed in a heavy bronze case and is designed to stand continuous usage, all the moving parts being made of brass or other non-corrosive material, besides which it is made water and dust-proof. The Bullard speedometers are made by J. H. Bullard, Springfield, Mass.

Drop Forged Crankshafts.—"More than forty of the largest motor and motor car builders are using our cranks with entire satisfaction," is a statement that speaks for itself and scarcely calls for comment. It is embodied in a leaflet sent out by the Wyman & Gordon Company, of Worcester, Mass., and Cleveland, O., illustrating some of the numerous styles of single and multiple throw crankshafts that they have special facilities for turning out in quantities. All stock cranks are made from special steel adapted particularly for the purpose and are subjected to a special process of heat treatment.

New Detachable Tire Grip.—The makers of the Healy leather tire have just put on the market a new detachable tire grip, made of a very tough, waterproof chrome leather. As will be seen by the accompanying illustration of it,

NEW HEALY DETACHABLE TIRE GRIP.

there are comparatively few cross straps connected at each end to side straps which serve to hold them in place on the tire. These cross straps have steel rivets inserted in them and are fastened to the side straps by a simple and ingenious device which allows any part to be instantly replaced when worn out. Owing to the softness and pliability of the leather bands, the grips do not injure the tire and may be tightened by means of a strap and buckle which makes them silent running. They prevent skidding and do not throw mud on account of their close contact with the tire itself. They are made by the Healy Leather Tire Company, 88-90 Gold street, New York City.

Eagleine "No-Karbon" Cylinder Oil.—If it could be figured out exactly what percentage of trouble is caused by each accessory to the car, there is little, if any, doubt that prominent at the head of the list would come the item of "poor lubricating oil" as a prolific source of worriment. Here, if nowhere else on the car, should be penny wise and pound foolish policy that would skimp by saving a few cents per gallon on lubricating oil be repressed, for of few other things can it be said so truly that the very best is none too good. That bugbear of every autoist—soot—is the direct outcome of poor oil and the trouble caused by its accumulation is endless. The Eagle Oil and Supply Company, 104 Broad street, Boston, Mass., claim that in their "No-Carbon" oils they have a cylinder oil which not only has a high lubricating value, but positively will not become deposited in the shape of soot.